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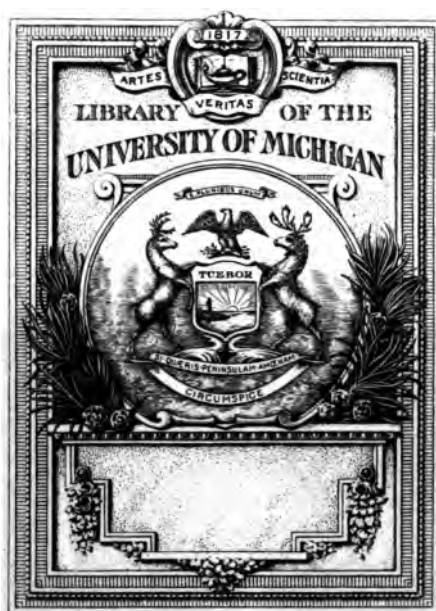
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# On the Canal Zone



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Grier



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*Thomas Graham Grier*



# ON THE CANAL ZONE

PANAMA

BY

THOMAS GRAHAM GRIER

1908

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PRESS OF  
THE WAGNER & HANSON CO.  
170 SOUTH CLINTON STREET  
CHICAGO

---

PRICE, \$1.00





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Dedicated to the Memory of  
my Father  
JOHN ALEXANDER GRIER  
formerly Chief Engineer  
in the  
United States Navy.  
He spent three years cruising in  
these Southern waters.

COPYRIGHTED, 1908,  
BY  
THOMAS GRAHAM GRIER



5-15-48

Handwritten

# INTRODUCTORY

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THE Isthmus of Panama, discovered by Columbus in 1502, has an interesting history. Before the year 1515, a Spanish adventurer, Balboa, had crossed the isthmus and discovered the Pacific Ocean. Between 1515 and 1521 the Spanish Government made every effort possible to discover a water-way across the isthmus.

Panama, at the site of old Panama, was created a city in 1521. About 1521 a road, wide enough to accommodate two carts abreast, was built from Nombre de Dios, on the Atlantic side, to Old Panama, on the Pacific side. About 1531 this road was extended to Porto Bello, on the Atlantic side.

In 1849 the stake, marking the beginning of the railroad, was set at Aspinwall, now Colon. The Panama Canal Company was organized by M. de Lesseps in 1879, and M. de Lesseps made his first trip to the isthmus early in 1880.

Work commenced on the Canal in February, 1883; in February, 1889, M. de Lesseps' Company went into the hands of a receiver. Approximately \$266,000,000 had been expended. The receiver estimated \$100,000,000 would complete the canal if locks were used, and eight years would be required.

Five years after the appointment of a receiver, the New Panama Canal Company was established. In 1898 the Comité Technique, composed of seven French engineers, reported that a Canal, which would be equal to all the demands of commerce, could be completed in ten years at an estimated cost of one hundred million dollars.

In 1898 sentiment in the United States was strongly in favor of an isthmusian canal under American control. In 1899 Congress authorized the President to have an investigation made as to the most practical isthmusian route for a Canal under the complete control of the United States.

The report of a Commission appointed by the President was made in November, 1901. The New Panama Canal Company, realizing their position and lack of funds, offered to sell or transfer its Canal property to the United States for \$109,141,500. The receiver's estimate of the value of the property that passed into his

05-20-48

hands was \$90,000,000. The United States offered \$40,000,000 for the assets of the New Panama Canal Company, which offer was accepted.

In February, 1904, the treaty with the Panama Government was ratified, and that strip of land, ten miles wide and fifty miles long, known as the "Canal Zone," was created. The United States, in this treaty, paid to the Republic of Panama \$10,000,000, and further agreed to pay \$250,000 annually, beginning nine years after the ratification of the treaty. "The Canal when constructed and the entrances thereto shall be neutral in perpetuity," is also a part of the treaty.

The Canal Commission arrived at the isthmus in April, 1904; about seven hundred men were at work at Culebra, all machinery in a deplorable condition, quarters inadequate and health conditions menacing. It took two years to get an organization together and build quarters; in fact, quarters are not all completed as yet.

In 1906 dirt began to fly, and every month sees an increasing amount moved. The plans of our best engineers are being carried out under military control, and the Canal will be built if the American people will stand by the men who are giving their efforts to complete one of the largest undertakings of modern history.

My interest in this work led me to take a trip to the isthmus for personal investigation. While there I wrote letters home, describing things of interest to me and what I thought would be of interest to my friends. I took my camera and was fortunate in having friends with cameras also who were as interested as I.

Over eighty of these pictures were taken with my camera, the others by my friends. I have compiled these letters and these photographs in book form. It is not intended as a literary or artistic production, as a man engaged in other occupations has but little time to re-edit his material.

I hope, however, that it will give to those who read this book some idea of life on the Canal Zone and of the work on the great Panama Canal.

THOMAS GRAHAM GRIER.



**The Steamer Colon in New York.**

## EN ROUTE FOR THE ISTHMUS OF PANAMA



### ***On Board Steamer Colon.***

February 15th, 1908, to February 21st.

It was cold and sleety in New York City when we left Pier 57 at the foot of West 27th street February 15th, at 3:12 P. M. Our leaving time was 3 P. M., but at the end of the pier a man stood waving a red flag. This meant that shipping in the river was in our way. At 3:12 P. M. he waved a white flag and no time was lost in backing the Steamer Colon into the stream, enroute for the Isthmus of Panama. The City of Cristobal is the destination of this steamer.

The Panama Railroad and Steamship Company, which operates this line (a government company), state the distance from New York to Colon is 1,980 miles, Colon lying just east of north of Cristobal. The full page illustration shows how closely the two towns are connected.

The course the vessel follows is almost straight south until it reaches the eastern end of the island of Cuba, and then the course is southwest through the Caribbean Sea.

The City of Colon is almost directly south of Pittsburg. It is difficult to realize that the Canal is so far East. In fact, the City of Colon is about as near London, England, as it is to Seattle, Washington.



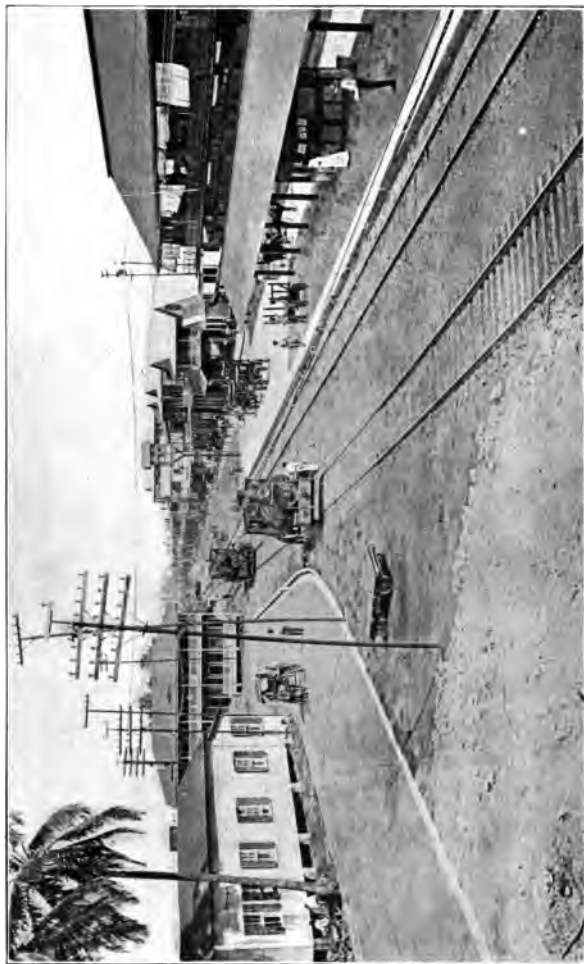
The schedule time for this ship is five and a half days from New York to Colon; other vessels of the same line take seven days. No stops enroute. Warm climate is reached in approximately 48 hours after we leave New York; depending somewhat on general weather conditions, and unless storms come up, the last four days of the sail are summer weather.

The Steamer Colon is a comfortable, well-arranged, and well-managed steamer, about 5,000 H. P. twin screws, and is equipped with its own refrigerating and electric light plants and wireless telegraph station. Several years ago fever was more or less prevalent on these steamers, and the annoyance from mosquitoes when lying in the harbor was great. But for the last two years, on account of the excellent sanitation of the canal zone, both fevers and mosquitoes have practically disappeared. Formerly everyone slept under mosquito netting, both on shipboard as well as on shore; but this has not seemed to be a necessity for two years. I have been informed, however, that about three or four grains of quinine and a small portion of rum is administered to the crew several days before arrival at Colon; continued while there, and for several days after leaving on the return trip to New York. Whether the other vessels have been free from fevers I do not know, but the Steamer Colon has had none for a long time, and I presume the same is true of the others.

The Panama steamship line is operated mainly for the employees of the Panama railroad, and Isthmus Canal, and to carry freight. The passenger accommodations are taxed to the utmost, especially during the spring and summer months, when many are coming north for their vacations, the employees in certain classes of work being allowed six weeks' vacation each year, and it is intended that this vacation shall be spent away from the Isthmus, it being a matter of health.

The rate for a passenger, not in any way connected with the government, for the best cabin is \$90.00; while for the cabin of less desirable location it is \$70.00. A much more favorable rate is made for the Canal employees and their families, and while they may not receive the accommodation that one may have who pays the high rate, they are given preference when travel is heavy, and passengers having no connection with the work are not taken, or if they do secure tickets it must be through some influence and an urgent necessity. There are other lines which have steamers making the trip, but the sailing time is longer. The Panama steamship makes the quickest and most direct passage, and for business, or for one having a limited time at one's disposal, the Panama line is the most desirable.

Monday.—Though the ship is heavily loaded with freight, she rolls so much that many of the passengers are sick. Today we have had to have the racks on the table to hold the dishes, and every now and then when an extra roll comes, crash goes some crockery; and



A View from Cristobal looking North. To the right is the Shed of the Railway Station at Cristobal, back of that is the Commission Store. The houses beyond the Commission Store are in Colon, and the street on which they front, and which is parallel to the Railroad, is Front Street, Colon.

exclamations fill the air. We upset the Worcestershire sauce bottle and put a few glass saucers on the floor. I stood up writing today, and swayed like a tall pine tree. It has been windy and cloudy for 48 hours, but not stormy. The sun has just begun to shine, and it will be clear this afternoon (Monday, February 17th).

This is Tuesday, February 18th, about 10 A. M. We have reached the warm climate, and it is comparatively smooth today. The sun shines bright, and the ladies are putting on their summer dresses. There are about ten children aboard. Today all the seasick passengers seem to be about, and a full quota sat down to breakfast. It would do you good to see me eat. I have had eight square meals up to date, and will not miss any, and oh! so lazy! Talk about loafing, I have it down to a fine art.

Meals are served three times a day. Breakfast at 8 A. M., lunch at 12:30, and supper or dinner at 6 P. M. I find myself ready at the sound of the gong; strange how good it is to eat when one is hungry.

The weather is superb, not warm, but spring-like. We are merging from winter into summer through the gentle intermediary of spring, and doing it all in five days. 'Tis a commentary on the progress of our times.

Today we sighted the Bahama Islands. A mild excitement prevailed among some of the passengers. One lady cried because the sight of land made her homesick. The land was so far off that it very much resembled fog or clouds on the horizon. It is strange to note the difference in temperament in people. The pendulum of mental attitude towards humanity and life swings to the two extremes in this small company of travelers. We all seem different, yet the officers of the ship are equal to the task of handling the work, they are all diplomats.

I was told today that all permanent residents of the Isthmus must be vaccinated, and the ship's surgeon would vaccinate the passengers who needed it. Smallpox is not prevalent, but precautions are seemingly taken on all matters. I started in on two-grain quinine capsules last night, and will follow the regulation until I am well away.

On Tuesday night, February 18th, it started to become oppressively warm, and Wednesday morning it was hot. A complete transformation of the passengers and officers, white linen trousers, white hats, tan shoes and white shoes. The ladies are now all gowned in summer attire. I repacked my trunk, putting away my winter clothes, and took out my summer ones. It was a hot and oppressive job.



**An Officer in White, without his Coat. The Coats are of Linen.**

Wednesday, February 19, about 6:30 A. M., we sighted the east end of Cuba and had the Island in sight for three hours. We could see the green verdure but slightly, a beautiful bunch of clouds hung low and cast a shadow, the view was pleasing but would not give one any idea of the character of the Island.

About 11 A. M. we sighted the west end of Hayti or San Domingo. The land was covered with haze and looked like shadows against the background of blue sky. The vessel is making 15 miles an hour now, which should land us at the dock at 9 A. M. Friday, the 21st.

I am now wearing summer underwear, low shoes, negligee shirt, and light summer suit. Four days ago the heaviest winter clothing.

'Tis Thursday, February 20th, about 9 A. M. The ship has been rolling and pitching since last night and we have a few sick ones. I have just been driven from the deck by a sudden shower.

Today the Island of Navassa was in plain view for several hours. While gazing at the land an old sea dog related to me his experiences in 1869, when he was one of a crew that anchored for 21 days in the roadstead off this Island, taking on a cargo of guano. The Island has a number of stunted trees about 12 feet high, and is the breeding place of all kinds of sea or water fowl; and he said you can knock birds down with a stick they are so numerous and without fear. The water about this land is so clear that the white sand is plainly seen in depths exceeding 50 feet. My sailor man said that only negroes and the keepers lived on the Island, that water for drinking was carried to the Island in casks, and that it was oppressively hot.

The narrative continued from the Island to coral reef, through hurricane and to destruction where ship was lost and half the crew. It is delightful when the wind is blowing and clouds gathering to be told, "Yes, just here is where the hurricanes are born," etc. Your imagination helps the rest.

I came near being seasick one day because an acquaintance on the ship gave me the details of a hospital operation; but I wasn't, and I have been well from the start.

It looks very much as if we will make port about 9:30 A. M., and the morning hours will be filled with the hurry of packing and disembarking. Nothing unusual today. The officers in white are good to look at. We have four lady musicians on board who are giving a concert series for the Y. M. C. A. on the Isthmus.

Friday, the 21st, 1908. Thursday evening was clear and the full moon and stars made it pleasant on deck, but yet Thursday evening was hot, and Thursday night hotter. At 11:30 I retired to my stateroom to roll and toss and perspire.

When one realizes that it can be so uncomfortable from the heat at sea, we appreciate all the more what our government has done for the canal zone to make it a livable place. Whenever I hear anyone criticise and tell how he can do it better, I'll put a black mark on him. I am becoming more and more impressed with what I learn of the sanitation of the canal zone.





It was raining as the Steamer Colon approached the Dock at Cristobal and the View was Misty.

## THE ARRIVAL AT CRISTOBAL



On February 21st, 1908, the steamer arrived at the dock about 9:30 A. M., but it was a half hour before we were all passed by the doctor of the port. All passengers who are to remain upon the Isthmus were vaccinated, but those who are to stay for a week or ten days are permitted to land without being vaccinated. All the preliminary work was done while at sea by the ship surgeon, who hands to the doctor of the port his list of names. We gathered in the dining saloon and as our names were called were allowed to pass out. Our passengers were all in good shape, so the affair was soon over. The most interesting part of the disembarkation was the meeting between the waiting husbands and the incoming wives and families.

Our baggage was taken to the Pier Eleven of the Panama railway, the most important pier and freight shed on the Isthmus, where a custom inspector examined mine and allowed me to pass on to my hotel in Colon. A colored man put it on a truck and took it to the street, where he secured a dirt cart, or what looked like one, the vehicle being propelled by a diminutive mule and managed by a small colored boy. In Colon silver money of the country, i. e., the Republic of Panama money, is two for one in United States



**Pier No. 11 as Viewed from the Deck of the Steamer Colon, when she Docked for Disembarking Passengers.**



**Pier No. 11, showing Closer View. Vessels Unloading Freight.**

money. The charges for hauling the baggage was 50 cents gold for the trunk, and 25 cents each gold for my other two pieces; making two dollars "silver." As is customary with many of the baggage transfers the manager of this complete transportation company tried to hold me up, but I had been advised before of the difference in money values. I came from the wharf in a carriage and this outfit also tried to speculate on my supposed innocence. However, since the first two occasions I have had no further trouble.

My hotel, the Imperial, is a three-story frame structure. The office, bar-room, bowling alley, billiard and pool-room, and stores are on the ground floor. On the second floor is the social room or parlor, a very large dining room, kitchen, and a few bed rooms. On the third floor all bed rooms. A porch runs nearly all around the building on both the second and third floors. The bed rooms are two styles, inside and outside rooms; you enter the outside rooms from the porch. The rooms have one door and one window. The walls and ceiling are plain matched boards painted a light lead color, the floor is bare with the exception of one small piece of matting for a rug by the bed. The furniture consists of a good bed, white enamel and brass, a rocking chair, two other cane-seated chairs, a large bureau, a wash stand, center table, several clothes poles, and a rack with eight pins to hang clothes on. There is a push button to call the maid or porter. There is but one electric light in the room.

The partitions are about 9 feet 6 inches high and the ceiling at least 11 feet. This makes it possible for the air to circulate and also to hear all that your adjacent neighbor says. The air blows through your room in the evening almost like a gale, and the nights are cool and comfortable at this time of the year in Colon and Cristobal because of these "trade winds."

I have one of the good rooms and it cost \$2.50 per day, American money. The room as a sleeping apartment could not be better, but is not much in appearances. The bed is provided with a mosquito netting, but the breeze is sufficient to drive away any wandering mosquito; in fact, the first night the wind blew through the room so strongly that it was with difficulty that I kept the netting in place. These nettings were an absolute necessity two years ago, but now with the constant fight against the mosquito they are used less and less.

My bed consists of a bedstead, springs, a mattress, one sheet, one bed spread, and two pillows. You do not sleep under the sheet, but on it. The bed spread you pull over you when you go to bed, and then kick it off when you are asleep; then towards morning you wake up and pull it up over you. It gets cool towards morning; a rain at night makes the morning cooler. I am told that during the rainy season the rain in the interior makes it cool enough to even find that a blanket is comfortable.





**Imperial Hotel.**



**Residence of Railroad Official: one of the Healthy Spots. You can see the Wind blowing the Trees. In Colon, Near Washington Hotel.**



Inside the Door was a Bar: It was a real Department Store: you could buy Shirts, Cigars, Coffee, Tea, Etc.



**A View looking West: Royal Mail Steamship Docks, Colon Railroad Station to the Right. The Railroad runs along the West Side of Front Street. The Railroad Station is about One Block from the Imperial Hotel.**

The commissary department makes living comparatively inexpensive for the employes of the Isthmus Canal commission and the Panama Railroad company. I thought I would investigate how things were for others living in Colon who did not possess the government privileges. I found that butter sold at \$1.25 a pound, silver. One pound loaves of bread, 15 cents. Meat, \$1.00 silver a pound, and this price was for liver, too, about good enough for cat meat. Ice sufficient for a family of four costs 75 cents a day. The above items are all given in silver and are only one-half these figures in American money. Sugar seemed cheaper, only 10 cents silver, and very good. Rice seemed cheaper, and also tea and coffee; but both tea and coffee are very inferior to what we get in Chicago. Tea was for sale at 20 cents a pound, and I wondered who paid for the packing. Flour and lard are very poor, and corn meal an impossible thing to consider as food. Fresh eggs are 5 cents gold each, 10 cents silver, and I have seen them advertised at 70 cents gold a dozen.

The above was obtained from two house-keepers who have to depend on the local stores for supplies. One of these ladies also stated, for an eight-room apartment, finished, she said, like the loft of a barn, cost \$87.50 per month in gold. Her husband is interested in three stores, and the rent of the smaller ones was \$3.00 gold per day. When you looked at the size you had to admit the price was steep.



**The Panama Government Building and Post Office, Colon.**



**Panama Railroad Offices.**

Household help is plenty, some good, but mostly very inefficient. Wages \$15.00 gold per month. I am here during the dry season, but a few questions brought out some of the difficulties of housekeeping, and reasons for increased expenses of living. Clothes and merchandise will mildew in a day, or even in less time in the rainy season. A man at luncheon said that he hung up his hat at midday, and when he took it down in less than an hour and a half the band was covered with mildew. I thought this was a joke, but another man said no! He has had a pair of shoes turn green in the night, and that clothes hung up in a closet would be ruined in a short time. To prevent clothes from mildewing it seems a custom to have an electric light burning all the time inside the closet.

I went further in my search on this mildew proposition to see what the stores had to say. In a cigar and stationery store they showed me a cabinet or cupboard in which they kept all the tobacco, cigars and cigarettes, except what was in the show case, and in the cupboard was a light. They explained that the stock in the case deteriorated rapidly unless the sun shone on it. The wife of the proprietor gave this information and volunteered the further fact that they kept a lighted incandescent lamp in the piano, and also kept moth balls in the piano. She said moths, roaches, fleas, and centipedes were plenty in Colon. There was a roach in my room; it was two and a half inches long. But housekeepers must know about the others, and a closer acquaintance with foreign insects is not desired.

A resident of Cristobal has a deep and wide closet or wardrobe which has an electric light under the lower shelf; he informed me that it was the only way he had of keeping his clothes and certain other articles from being ruined by the dampness. A resident of Culebra whom I met said that he had an air-tight room in which a light was kept burning all the time; in this "dry room" his family kept their clothes.

My investigation on mildew brought me a few more items on household economy. Good apples 35 cents a pound silver, and California grapes \$1.00 silver per pound. Also that fruit of any kind, except oranges and bananas, are imported, and as far as I can find out this seems to be generally true, and from the nature of the country seems strange. I have seen some cocoanuts on the trees, but these may not be classed as fruits.

My housekeeping friends also called my attention to the milk and cream. They said that evaporated milk was what they used, and the only other kind that they could get was goat's milk. I thought I saw a pitcher of real milk tonight at dinner at the Cristobal Hotel; the first I had seen since I left the Imperial Hotel, New York. But, no! The pitcher of milk was condensed milk mixed and bottled up in the kitchen and put in a pitcher. You must realize, however, in the above impressions on food and house-

keeping I am getting what the inhabitants of the city of Colon have to contend with; not what the government employes get, who are supplied from the government stores. On this milk question it should be mentioned that at the commissary quarters condensed milk is served. The cans are labeled at this hotel "Evaporated Milk," from Highland, Illinois.

I saw an empty wooden box in which evaporated milk had been shipped. On the side is burned in large letters, "Keep in a cool, dry place," which instruction, I think, is about the most difficult for any housekeeper to follow.





American Quarters, Colon, as Viewed from the Washington Hotel.

## AN ACCOUNT OF INVESTIGATION ON WASHINGTON'S BIRTHDAY



On February 22nd the day was clear, with occasional light showers. It was a holiday for the Americans on the isthmus. In Colon the "Red Men" had a street parade and barbecue. The town was filled with people who are working along the line of the railroad, and merrymaking was the order of the day.

In the morning I took breakfast at the Washington (Commission) Hotel, and remained around the quarters until the parade passed by. By the quarters I mean the American quarters in Colon, said to be the healthiest spot on the isthmus, and reminds one of a delightful ocean resort. Near the quarters, stranded on the beach, is the hull of one of the French barges.

We spent the time during the morning in the city of Colon and at the quarters in Cristobal; taking our noonday meal at 11:30 A. M. at the Cristobal Hotel, conducted by the I. C. C. (the Isthmian Canal Commission). The noonday meal starts at 11 A. M. and the hotel is open for service until 1 P. M.

After resting a short time four of us started out on a tour of investigation. Our steps took us along the commission's property. The first point of interest was the corral where the wagons and mules are kept, and well kept; not a single mule kicked while I was there. I took a picture of the collection of wagons, and a picture of a building now used as a stable, but where employes of the commission and railroad used to sleep. It looked like tough quarters, but things are better now.



**The Red Men's Parade on Palm Avenue. Cristobal, Washington's Birthday, Feb. 22, 1908.**

The machine shop was the next place, and it is certainly a surprise to see such a complete and well ordered and equipped shop. This, I understand, is the only shop on the isthmus operated by the Panama railroad. The machinery of the shop is driven by old French engines which have been rebuilt; and some of the construction tools, such as cranes and cars left by the French, have been put in working order at this shop. Also several old French locomotives have been rebuilt here. There are other machine shops along the canal, but they are part of the canal organization.

We visited the round house and it looked like one of our own railroads in the States. In many of the stalls two engines were



**Washington Hotel as Viewed from the American Quarters, Colon.**





**Corral where Mules and Wagons are kept.**



**Stable that Used to be Sleeping Quarters.**



**P. R. R. Round House, Cristobal.**



**Negro Quarters and Mess at Cristobal.**

standing, and about 30 engines in all were in the round house. Remember this was on Washington's birthday and possibly a few extra engines may have been on hand, but the freight engines are in the round house or yard during the day.

The railroad is used during the day for hauling construction material for the canal work, and moving the dirt from the excava-



**Old French Bucket Dredges, back of Negro Quarters at Cristobal.**

tions. The only other trains allowed are four passenger trains each way. The freight for the Pacific steamships line begins to move from 5:30 P. M. and continues all night if the quantity of freight to be hauled requires. A train carrying commissary supplies and ice leaves Colon at about 4 A. M. The only ice plant



**An Unloading Crane or Hoist used in the work of the Canal.**

operated by the government is here in Cristobal. There are two other ice plants on the isthmus, one in Colon and one in Panama, owned by private capital.

Right near the round house was a coal hoist and chute that unloads the coal from the car and puts it in bins at an elevation, which enables the engineers to coal up their engines by gravity, a great saving in time and physical exertion.

The negro quarters were near, and our visit to them impressed me how much they are like children. There are some very good negroes working, but the large majority are inefficient and irresponsible unless under the direct guidance of an overseer, and then even their irresponsible nature makes it a difficult matter to handle them.

The harbor back of the negro quarters had a number of pieces of abandoned French machinery. I photographed some of the dredges. The dry dock further on is sufficient size to take care of the largest dredges and tugs used on the canal. An old French barge or sea-going clapnet, self-propelled, was in the dock being repaired.

The commissary warehouse or Mount Hope is a building 500 feet long and 100 feet wide. It is built of frame and corrugated iron, and is divided into three sections by fire walls. They burned one store house down and now great care is observed. At this warehouse all the supplies for the canal (not food) is received and redistributed according to requisition. Very heavy machinery ordered for special work may not be unloaded here, but from the looks of the stock it seemed as if everything could be found in this place.



**French Barges or Clapets**



**A General View, Pier and Dry Dock used by the Canal Commission.**



**A Closer View, showing Dry Dock in the Center and Shops on the Right.**



**Entrance Old French Channel.**

By the time we reached the warehouse we had placed one mile between us and Cristobal, and I was hot and tired, but we had one more place to see—the reservoir for supplying water to Cristobal and Colon. I was told it was about a mile, but a mile up hill on railroad track and through jungle seemed like many miles. We passed pumping station and filter plant, and on and on we trudged. When we reached the top of our climb the view was one mass of green foliage on all sides, a regular jungle picture. Of course the reservoir looked all right, and we made haste to get back to rest our tired feet.

All along our climb we could see small huts perched on hillside; negroes and Chinamen cultivating small banana fields surrounded by the dense tropical growth, trees covered with vines.

Our afternoon jaunt had taken about five hours. At 6 P. M. we dined, rested until a little after 8, then made tracks for the Imperial Hotel, stopping on several errands. By 10 P. M. I was in bed sound asleep.



**Old Pipe and Abandoned Machinery left by the French.**



Here is the View you have of the Quarters at Cristobal when you look towards the North. There is a Carriage Drive on the Other Side of the Engine and Car in the Fore-ground.

## A SHORT DESCRIPTION AND INVENTORY OF CRISTOBAL



The steamers of the Panama Steamship Line at one time used to dock at Colon, but now the company have a dock along the south side of Cristobal. If you walk directly away from the steamer across the tracks to the road you are at the quarters in Cristobal. Turning to the left and walking along the road you come to a point of land on which is the De Lesseps residence and official headquarters. Continuing in your walk you round the corner and have in plain view the curving Avenue of Palms, which borders the east side of the quarters; it is sort of a V-shape point. At the very point the land has had an elevation above the sea level for many years, but further inland less than three years ago it was a marshy, muddy hole, which has been all brought up to a satisfactory grade. And on this place are many houses, a commission hotel, a commission club house for employes, fire department, post office, police station, market, railroad station, commissary department store, cold storage warehouse, ice plant, bakery, laundry, and not the least, Pier 11 where the vessels unload their freight and passengers.

When passengers disembarked from the steamer Colon we did not get off under the protecting cover of Pier 11, but just about 550 feet to the west of it. But we had to follow our baggage, which was taken there by our stewards.



**De Lesseps' Residence, now Used by the I. C. C. It is within a Three Minutes' Walk from the Dock.**

Turning to the right as one leaves the pier we come to the cold storage warehouse, and right along the avenue in order come the ice plant, laundry and bakery.

The cold storage plant is as complete as any in the Chicago stock yards and is managed with the greatest care. There are air-cooled rooms, rooms near the freezing point and rooms away below



**Statue of Columbus and Indian Maiden in Front of De Lesseps' House.**



**Turning the corner at De Lesseps' House, you come upon Palm Avenue. There are a double row of palm trees and a good road. The View of the Red Men's Parade shows the Avenue better. This illustration shows the green grass walk by the sea wall.**

the freezing point. Every piece of meat as it comes from the States is wrapped in a thin cloth to keep it clean; additional heavy cloth that looks like burlap is put over this for further protection and cleanliness. Everything is spotless.

In this tropical country it does not take long for food stuffs to spoil, and consequently the care is most essential. The families of the government employes are supplied with food stuffs from this place,



**Cold Storage Plant; next to this is the Ice Plant, then the Laundry and then the Bakery.**



as are also the commission hotels and messes. Four hundred and fifteen thousand pounds of fresh beef per month is sent to the hotels and messes, and two hundred thousand pounds for family trade.

The cold storage warehouse receives from New Orleans every ten days one hundred and fifty tons of fruit and vegetables, of which eighty tons are potatoes. Two hundred and fifty barrels of apples are received every five days. Eight hundred gallons of milk, in cans, is received every five days and is bottled in the storage plant. (You do not get any of this at the commission hotels.) Two hundred cases of eggs (thirty dozen to the case) are received every five days.

Pork, mutton, veal, fowl and anything in season in New York can be obtained. The family trade by this means have a New York market brought to their door. The prices are published weekly, so the housewife knows what she has to pay.

The storage plant is in a building three stories high, no basement. The first floor is for meats, ice, milk, butter, eggs. The second floor, "air cooled," is for fruit and vegetables.

The ice plant makes 63 tons of ice a day, and occupies the ground floor to the west of the storage rooms.

The printing plant, operated in connection with the Panama railroad commissary department, occupies the third floor. It does all the railroad printing and turns out over 2,000,000 individual pieces of printed matter monthly; mostly forms and blanks used in railroad service. There are seven presses. This plant does all its own book ruling and book binding, composition and stereotyping. It is a modern self-contained plant. Every machine is run by an individual electric motor. A fairly large stock of paper is carried and every effort made to give economical results in operation.

The class of men working in the printing plant are all native, or West Indians, except foreman and superintendent. Under proper supervision it is stated that these men make efficient workmen. While they are slower than Americans their work is very satisfactory.

A coffee roasting plant has recently been installed on the third floor over the ice plant, the idea being to roast coffee on the isthmus instead of sending it to New York. This will save time and also the transportation expense to and from New York.

The laundry does all the washing for the steamship line, for the commission hotels and for employes on the canal work and railroad. Two hundred and seventeen employes were at work in February, the majority women. It is warm work, but the buildings are open and well ventilated. All machines are electrically heated and operated except two steam heated mangles. Seventy-four electric hand irons are used. The work is in charge of a superintendent and two assistants.



**These 3 Illustrations give an Interior View of the Laundry at Cristobal. Another Department as large as one of these rooms is about completed. With the Laundry at Ancon, the workers on the Canal Zone will begin to feel that relief is in sight. Clean clothes are a great boon in a hot climate and the Laundries have been overcrowded with work.**



**Two Groups of Employees in the Laundry.**

The bakery adjoining the laundry bakes all the bread for the commission hotels and is a model, up-to-date plant. The bakery also furnishes pies, pastry and rolls. The dough mixers are white, but the majority of the help is colored, but nowhere can you see greater cleanliness than in this place. Every employe seems to have a personal pride in the work. Clean white clothes and cap are donned every day. An ice cream department or factory will be started, all milk used being brought in cold storage from New York.





Panamanian Fire Department, Colon.

## A FIRE IN COLON



On the night of February 23rd I was tucked under the bed spread by ten-thirty, but not for a full night's sleep. Suddenly it seemed pandemonium broke loose. I jumped to my feet, looked at my watch; 'twas just a little after 2 A. M., February 24th. The locomotive whistles were blowing and people shouting; it was a fire. Without waiting I rushed out on the porch in my night clothes and joined three others. Two blocks to the south of us a frame structure was sending aloft huge flames. The wind was blowing strongly, and while we watched another building caught. By this time our crowd of spectators, women and men, had increased to over twenty, and no ceremony was observed in regard to clothes. The fire began spreading, the night was as bright as



**The American Fire Department at Cristobal.**

day. I retired to my room, dressed, packed all my things and made ready for a hasty exit, then again joined the watchers. There were very few who did not do the same as I did. From our elevated position we could see the firemen. They were driven back time and time again from the heat, but would return to the fight. The buildings were of frame, of light structure, and soon the entire block was ablaze.

A bucket brigade was formed to throw water on the three men who were holding the nozzle of one of the fire hoses; they were fighting to keep the fire from spreading across the street. We watched them with intense interest, for if it did spread and the area of the fire increased, it would be beyond the power of the two available fire companies. The heat grew stronger and stronger, our anxiety waxed greater, but about 4 A. M. the structure began to fall and the fire was under control. The streets were full of people carrying household articles; carts were loaded down, and even colored women with big bundles on their heads were a common sight. At 4:30 we felt safe to retire, but at breakfast it was a sleepy crowd. Yet all were thankful that they were not out camping on the streets, as were many of the poor unfortunates whose abiding places and homes had been destroyed.

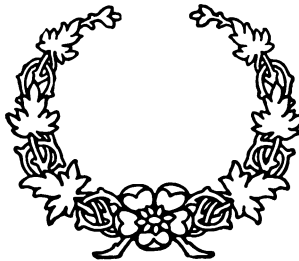
The American fire department is at Cristobal and it is a picked body of men; they certainly can hustle. You get a different view of things standing around in pajamas and bare feet. I am not saying much about the Colon fire department, made up of Panamanians,



**Chemical Engine, part of the Equipment of the American Fire Department of the Canal Zone.**

only they are strong on blowing bugles and making noise and a little weak on throwing water.

This fire was a commentary on the commissions' foresight. The proprietor of the hotel said that a fire like the one of this night two years ago would have wiped Colon off the earth, but the new fire department of Panamanian government and the one of the commission, together with the water works system, saved the city. Two years ago all the protection the city had was a few water tanks. I hardly expected to see the efficiency of these improvements demonstrated, but my commendation cannot be too strong for the canal commission; they are doing wonders and have great odds to contend with.





Interior View of Bachelor Quarters at Paraiso.

## COMMISSION CLUB HOUSES



With so many men and no sources of entertainment for them, a problem presented itself to the Canal Commission, a problem that was partly solved by building four Commission Club Houses, one at each of the following places: Culebra, Empire, Gorgona and Cristobal.

These houses are provided with a gymnasium, a bowling alley, pool and billiard room, library, a room for games, checkers, chess, etc., an entertainment room, barber shop, shower baths, and in the wide, cool corridor chairs and tables are provided and soft drinks and ice cream served. Cigars and tobacco are also sold.



The Commission Club House and Y. M. C. A. at Cristobal.



An agreement of co-operation was entered into by the Isthmian Canal Commission with the International Committee of the Young Men's Christian Association for supervising club privileges. The Commission built and equipped the club houses. The committee supplied the secretaries. These secretaries organize and conduct the activities of club life, and while the ownership and control of the property rests in the Commission, a committee of five representing the Commission act in an advisory capacity.

The secretaries are bonded and are accountable to the Commission for all expenses and receipts. Money can only be spent when voucher is approved by the General Secretary. The Association is to be as near self-supporting as possible. Membership dues, fees or receipts from any other source will be expended in the conduct of the work, and the extent of the privileges depend upon the income.

The membership of the club is limited to the white "gold" employes of the Canal Commission and the Panama Railroad. Special action on others not in the employ of the government is required.

No initiation fee is charged, but dues are payable in advance. Four dollars for a quarter year, seven dollars for a half year, twelve dollars for a full year. Charges are made for pool 2½ cents per cue, billiards 30 cents an hour, bowling 10 cents a game; lockers are one dollar per year.

Membership tickets in any Y. M. C. A. will be honored for their unexpired value. Members can have tickets issued to guests, and if you are a stranger just walk up to the secretary and introduce yourself, and if you are just down there looking around they will take a chance on you and some hot days you will be very glad to take advantage of the courtesy. There is nothing equal to a good shower bath, and you will find them at every club house.

I commented upon the genial hospitality of the Y. M. C. A. secretaries and their associates, and was met with the response that it was their belief that Christianity was a life to live and not simply a creed to believe. "We are practicing what we believe the Bible teaches us to do. The needs of all men are not the same. The Commission recognize the physical and mental necessity of providing meeting places, and we make it our aim that it will be a place for wholesome recreation. We have our Bible classes on week night, we have Sunday clubs organized voluntarily, who arrange for speakers in the entertainment hall, either men from abroad or prominent men who are prepared to give talks on vital subjects of the day."

The ladies are extended the privileges of the club on Tuesday and Thursday afternoons, and are also admitted to public entertainments.

**Reading  
and  
Writing Room.**



**Game Room:  
Checkers,  
Chess, Etc.**



**Pool and  
Billiard Room.**



**Bowling Alley  
and  
Gymnasium.**



The entertainment hall may be rented by social organizations or clubs for dances, concerts or entertainments. A piano and a stereopticon are part of the equipment.

Educational classes similar to those in the states are organized. Baseball nines and bowling teams are very active. There are four secretaries and one traveling secretary. There are also four assistant secretaries, but these assistant secretaries are also physical instructors.

The committee who are called "advisory" are:

Colonel Wm. C. Gorgas.

Mr. W. G. Tubby.

Mr. H. L. Strentz.

Mr. J. Bucklin Bishop.

Mr. A. Bruce Minear.

These men, I am informed, approve of the building of four more club houses, if that is correct. They are wise men. You take men living in rooms, comfortable though they are, and eating in "hotels" where food tastes the same day after day (and the cooks are just as poor as poor can be), why he just naturally wants to go out somewhere, and there is no place to go. Every little country town has its country grocery store for a neighborhood club, but along the canal where the dirt flies is the most lonesome place when the sun goes down. The most confirmed bachelor just can't help getting married down there; what they need is more married quarters and a few more club houses.

Wm. H. Baxley of Culebra, J. Floyd McTyier of Empire, Ralph R. Wolf of Gorgona, and M. J. Stickel of Cristobal are secretaries and have club houses; and F. C. Freeman travels around helping out.

But the boys that put you through the paces are Robt. Goodman, C. H. Gifford, T. F. La Rose and Robt. E. Gourlie.

These are physical instructors and assistant secretaries. It's worth while to know them all; you may go down to the canal zone some time and you can make yourself at home if you behave.





One of the 70 shovels along the line of the Canal.

## THE CANAL



The Isthmus of Panama has an easterly and westerly direction. On the north side of the Isthmus is a bay called Limon Bay; this is two and three-quarters miles wide, and extends inland about four and a quarter miles.

To the east of the entrance lies the island of Manzanillo, on which are the two cities, Colon and Cristobal. Back, or east of the island, is the Bay of Manzanillo, which formerly connected with Limon Bay, but across this narrow neck of water the railway is carried by an earth embankment, thus turning the island into a peninsula. Limon Bay forms the harbor of Colon.

Starting about four miles and a half from the shore line of Limon Bay a channel about forty-one feet deep is being dredged. This channel runs parallel to the shore line at Colon. It is the beginning of the great canal.

Colon, on the railroad schedule, is four and a half miles from Mindi, and Mindi is practically a half mile from the shore line. It is here where the railroad and the canal meet; up to this point the canal channel will be wide and straight. A slight turn is made at Mindi and the digging of the channel continues for about two and three-quarter miles up to Gatun. The distance given for the canal



**Steam Shovel in Cut at Paraiso.**

channel up to this point is 7.15 miles. The distance along the railroad from Colon is given as 7.08 miles.

The canal, up to this point, is at sea level, the tide on the Atlantic Ocean and Caribbean Sea hardly exceeding two feet at its greatest range. Up to Gatun the elevation of the land is not very high, but from this point on to Pedro Miguel (according to railroad schedule 40.72 miles from Colon) is where the high elevations are met and where the dirt must fly.

The enormous amount of excavation necessary to make the entire channel a sea level canal, as well as the time required, were two of the important factors which led to the decision to make a lock canal. Another consideration was the difficulty of controlling the water flow in the Chagres River, flowing into the Atlantic, and the Rio Grande flowing into the Pacific. So a lock canal was decided upon, and they are building it.

I led you up to the town of Gatun, following the canal as planned up to Gatun, because here is a point where the great dam is to be built which will control the waters of the Chagres River and its many tributaries, and will flood many square miles, making a great lake. At Gatun, too, are three great locks to lift the vessels to the higher level.

This great lake is, of course, of various depths, its maximum level above the sea will be eighty-five feet. A channel through this lake must have a depth of at least forty feet, and the line of the canal follows the line of lowest elevations and least excavations. The



Showing another of the 70 shovels, moving rock.

channel continues south in a straight line from Gatun for four miles, takes a decided turn towards the southeast for four miles and a half, practically at this point right in the channel of the Chagres River. Again it turns for a mile and three-quarters almost directly east, another turn to the southeast of less than three miles, again to the south for two miles, to the southeast for a mile and a quarter, to the east for two miles and a quarter, northeast a mile, east a mile, a little south of east for three miles and this brings the canal channel past Gorgona Matachin and up to Bas Obispo.

It will be difficult in reading the above twists and turns to grasp the course unless one puts it down on paper, yet it is necessary. I have given the above in detail and in approximate distances in order to answer the question "Does the canal go straight across?" "Why not? Well, how does it go?" Further than this it must also be added that from Gatun to within a few miles of Obispo the channel as dug will not appear as a canal, as there will be the surface of the lake stretching on all sides.

From Bas Obispo to the Pacific Ocean the line of the canal has few turns and follows an almost southeasterly course. The southern or Pacific end of the canal is east of the Atlantic end by approximately 20 miles or more. The Pacific end of the canal is a short distance from Panama. It makes its entrance into the ocean at La Boca and the channel is being dredged to a distance of about four miles to deep water.

Originally it was decided to place a lock at Pedro Miguel ( $39\frac{1}{2}$  miles from the Atlantic, 10 miles from deep water of the Pacific), have a dam at La Boca, making a lake with a 55 foot level, having also two locks at La Boca. Upon investigation of the foundation



**Cut showing proposed Site for Dam at La Boca. This Site is abandoned, but the Government is filling in the land.**

for the dam and for better protection, the plan has been changed. The dam will be at Miraflores, which is approximately 41 miles from the Atlantic end of the canal channel and about 8 miles from deep water in the Pacific.

The locks will be located between Pedro Miguel and Miraflores, and there will be a sea level channel from Miraflores to deep water in the Pacific. The tide in the Pacific has a range of 23 feet. This requires additional excavation on the Pacific end and regulating gates for the tide.



**Laying Temporary Tracks for Dirt Trains and Steam Shovel.**



Getting a Steam Shovel up to Its Work.

## GATUN DAM AND LOCKS



At Gatun the valley of the Chagres River descends to nearly sea level. On either side rise two large hills and in the center is another natural elevation. These natural embankments have been selected for the abutments of this great earth dam, which is to control the flow of the water towards the Atlantic and will make the great lake.

The base of the dam from the lake to the extreme toe towards the ocean will approximate 4,000 feet, but depends upon the characteristics of the material used in its construction, and will be made wider if necessary. The slope of the dam will be one foot in twenty-five on the side away from the lake, but much steeper on the lake side. The crest or top of the dam will be 135 feet high.

Extensive experiments are being carried on to obtain the friction values of different available earths and also to what extent they allow moisture to seep through.

This dam will be over one mile along its crest (about 8,000 feet). Extensive drillings are being made along the length of the dam so that an exact knowledge of the foundation will be known and the work conform to it.



I stood on the trestle forming the lake end of the Gatun Dam and looked at the expanse of country that would be covered.



From here I went up to the Offices of the Engineer and from the porch took a photograph of the Dam site, Old Gatun and the beginning of the cut for the Locks.



Turning the Camera further to the right we have a continuation of the excavation for the Locks.



The Spillway is a mile and a half from the office from which the other two pictures were taken. This picture shows Old Gatun from the Spillway and the offices and quarters further back on the high hill.





**That portion of Gatun lying within the lake.**



**The portion of Old Gatun on the site of the dam.**



**The New Village to which the Residents of Old Gatun are to be Moved.**



**Two Views. At Work on the Spillway Gatun Dam.**



**A Construction and Supply Train.**

Through the natural hill in the center of this line on which the dam is to be constructed they are making a cut for a spill way. It will be 600 feet wide and be filled with a concrete wall seventy or seventy-five feet high. Approximately 250,000 yards of concrete will be required for the spill way. Regulating gates will be erected on top of this wall of masonry, and the top of the spill way is to be approximately 90 feet high.

The water in the lake is to be 85 feet above sea level. During the rainy season the gates in the spill way will be open and the height of the lake maintained at the desired level. No water will ever flow over the crest of the dam; the flow from the spill way will pass through a channel concreted on sides and bottom, and continued for a sufficient distance to avoid any possible damage to earth dam. The natural hills selected for abutments and spill way furnish a safeguard against earthquakes.

It will require approximately 22,000,000 cubic yards of earth to build the dam, and suction dredges are to be used to throw in the earth. When the height becomes excessive for the pumps on the dredges, auxiliary pumps will be used, operated by electric motors. The lake side of the dam will be covered with rock to prevent action of the waves on the earth. The two extreme edges at the base of the dam are called toes. These are now being built.



**Cut at Bas Obispo, showing the white Smoke arising from a Blast in the Distance.**

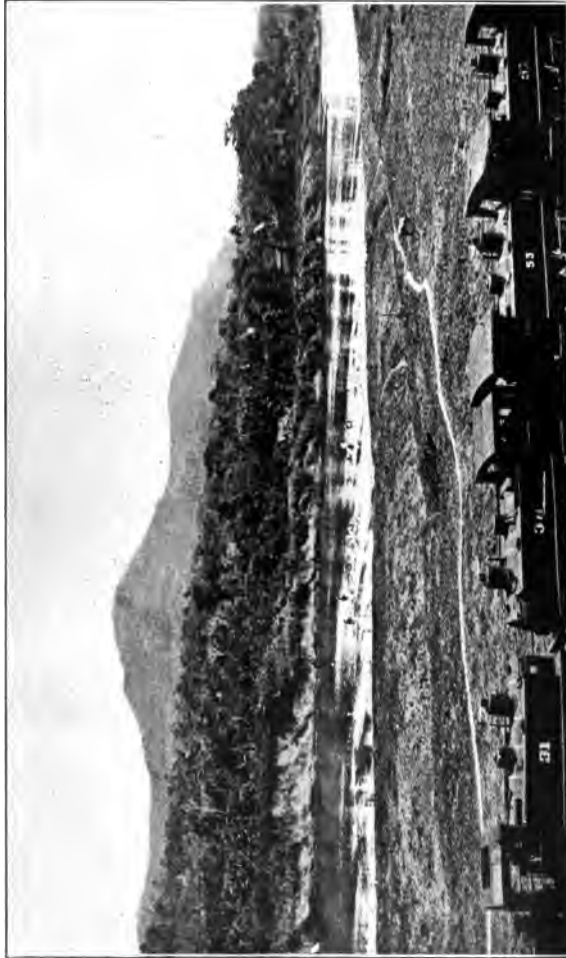
The quarters and offices for the employes stationed at the work on the Gatun dam and locks are about one mile from old Gatun and upon a high hill overlooking both dam and locks.

The old town of Gatun lies partly on the site of the dam and partly where the bed of the lake will be. The work is progressing at this point to such an extent that it is only a matter of weeks before the town will have to be moved and another of the quaint landmarks gone; but it looks better in a picture than in reality, so no harm is done. A new town to which the natives are to be moved has been built two miles to the northeast of old Gatun.

The dam has a northeasterly direction, and at its eastern extremity the locks will be located. The locks will lie nearly north and south. An enormous amount of excavation has already been done here through soft rock and red earth.

There will be three locks in duplicate, that is, it will take three locks to lift a vessel from sea level to the 85-foot level, each step approximately a little over 28 feet. By having a duplicate set side by side, vessels can be coming up and going down at the same time. These locks will be 110 feet wide and each chamber 1,200 feet long. The water will be controlled with mitre gates such as are seen in canals all over the world. However, a new type roller gate of unusual construction will be used in the upper locks to prevent any accident caused by the breaking of the other gates. All the machinery for the locks is to be operated electrically when possible.

The rock on the isthmus is not good for concrete, neither is the sand. At Porto Bello, twenty-one miles down the coast, a



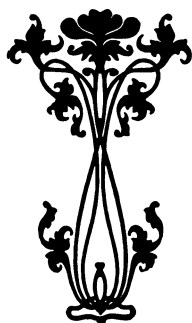
Chagres River at Gorgona. Old French Locomotives in the Foreground.



**Work in Canal Cut near Gorgona.**

quarry has been located. The stone will be brought up in barges from there. For sand it looks as if it will be necessary to go further down the coast for it.

The walls between the locks will be over 110 feet wide and the walls on the side equally as heavy. One can imagine what a big job it will be. None of this concrete work can be started until all the excavation is finished, but the engineering department is at work on plans for cable ways, mixers' sheds for cement, dumps and platforms for sand and rock; and before the last steam shovel and last blast have made the way clear there will be an erecting gang shoving them for room. Everyone is pushing everyone, and no time is lost anywhere, except when the rain is too much.





A View of Culebra Cut.





A View looking North up the Cut from Paraiso.

## THE BIG CUT, CULEBRA

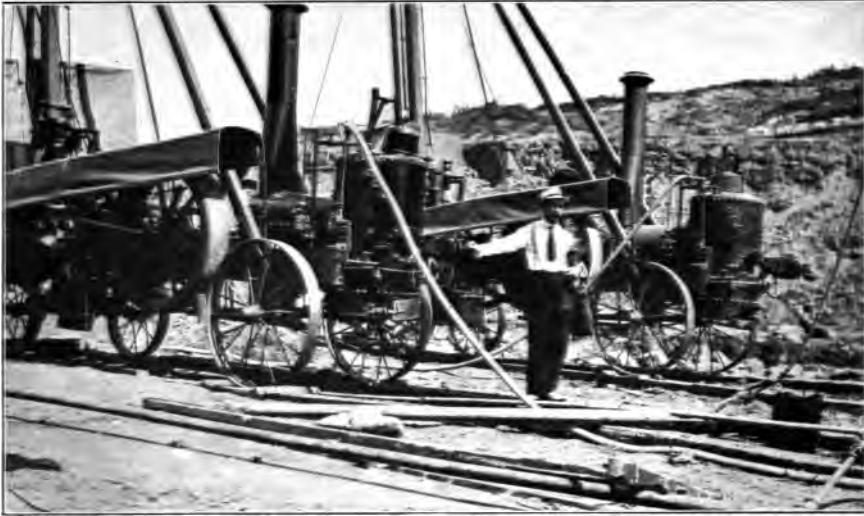


The backbone of the isthmus is near Culebra. At this point the highest elevation on the new center line of the canal before excavation began by the French was 312 feet. At Bas Obispo, about four and a half miles nearer the Atlantic, the elevation was 233 feet.

The French cut down the elevation at Culebra 161 feet and at Bas Obispo 148 feet. These cuts were not wide. When the Americans took hold there remained a depth of 45 feet at Bas Obispo, 111 feet at Culebra and on the barrier at Contractors Hill, just south of Culebra, a depth of 140 feet.

While at points along the entire line of the canal you will see steam shovels at work, it is between Gorgona, about 28 miles from the deep water of the Atlantic, and Pedro Miguel, about 40 miles from the Atlantic, that one sees the great activity of steam shovels, air drills, blasting, track laying and track shifting, and dirt moving.

The line of the Canal up to Gorgona has had little obstruction after passing the locks at Gatun, but the continual ascending character of the country places in the way of the work this barrier of dirt and rock nearly twelve miles along its base and rising to the height of three hundred feet, through which a channel must be cut to a depth within forty feet of sea level. A channel of 600 feet wide at the bottom and ever widening width as the elevation increases,



**Air Compressed Drills.**

until one is almost astounded at the mass of earth that has to be removed. Think of five hundred train loads of dirt being moved every day, trains of sixteen cars, and one realizes how busy the place is.

Out of this big cut at Culebra three hundred and thirty trains are being hauled. About seventy steam shovels were at work along the entire canal; the smallest take up two and a half cubic yards and can fill and dump a shovel full every eighteen seconds. The largest shovels take up five cubic yards. Some shovels will be filled and dumped every sixteen seconds, and if the competition between the various divisions keeps up they will be sure to cut this time down.

The shovels lose time in being moved, as it is necessary to keep them always in working distance of the earth. Time is also lost in waiting for cars, yet no time is lost in moving trains. Many of the cars are dumped by air and many by the Lidgerwood system. This is done by a plow connected by a cable to a steam windlass. The windlass is on a special car placed between the train and the engine. The plow is on the rear car, the cable running over the 16 cars, along top of the earth. As soon as the train reaches the dump, the signal is given and in less than five minutes the cars are empty and off for more dirt.

All along the work, air compressed drills can be seen, drilling for blasting and drilling to obtain the formation of the soil. Records of the work of every steam shovel is kept with accuracy and also of every drill. Comparative reports of steam shovels are published weekly and the efficiency wonderfully increased.



**This photograph was taken of Gold Hill from Contractors' Hill, the intervening chasm being the channel of the canal. The picture is intended to convey the magnitude of the cut near Culebra.**



**This photograph is one showing the side of Gold Hill with a nearer view than the one above. It was the intention to show the sixteen-car train and engine for a comparative picture; three cars and the engine were too far advanced, but by looking at these two pictures an idea can be had of the size of the work.**



About one mile North of Paraiso, looking South towards the Pacific Ocean. This was taken from an Elevated Tower in the center of the cut. Dirt Trains passed this point about every three minutes.



About one mile North of Paraiso, looking North towards Culebra, this was taken from an elevated Tower in the center of the Cut. This with its companion picture at top of page gives at least a stretch of six miles along the line of the Canal excavation.

The illustrations on page 60 were taken at the point where the smoke and steam is arising off in the distance.

In January, 1906, the output per shovel was 363 cubic yards per working day of eight hours; in January, 1908, the average output was increased to 1,084 cubic yards, and in February, 1908, to 1,186 cubic yards. From the interest shown there is reason to believe that this record will be increased.

To walk from one end of this work to another impresses itself upon you. From Empire, one mile north of Culebra, on past Culebra, down to Paraiso, a distance of five miles, the sides of the great ditch loom up in giant proportions, and the towering Gold Hill on the left and Contractors Hill on the right, points just south of Culebra, seem to almost meet the sky; and then you realize what it means when you are told that still over one hundred feet deeper must the ditch go before the water can flow through.

Just south of Gold Hill on the left is Cucaracha. In the fall of 1907 this hill had a landslide and filled up the excavation to a depth of twenty feet, the total amount of material being estimated at 500,000 cubic yards. The soil is of such a nature it looks as though it would keep on doing this for some time to come. This movement first began in 1884 and ceased soon after 1889. Special work is being done to prevent further slides. It is just such things that make this work greater than even it appears to the observer.

At Pedro Miguel, nearly forty miles from the deep water of the Atlantic, the descending elevation of the backbone has gone below the 85-foot level, and at this point the first of the great locks on the Pacific side will be located. At Miraflores, just one mile further, another dam will be built and between this dam and Pedro Miguel the other two locks will be located. Borings are being made to insure rock foundations for these locks; originally two of these locks and the dam were to be located at La Boca, within four miles of deep water and right on the shore line, but this was abandoned because of engineering difficulties, foundations being poor and, further, the location of the locks inland offered more protection from attacks.

From Miraflores to deep water the canal channel will have to be dug and dredged to make it a sea level canal.





Steam Shovel making New Cut at Gorgona.



**La Boca Docks, showing New Electric Cranes.**

## LA BOCA

At the Pacific terminus is the town of La Boca. The canal channel extends four miles out to deep water, but large areas of level land are being made extending out towards deep water, giving the government space for the erection of works of any kind that may be necessary. The original site planned for the dam is also being filled in.

The long piers at La Boca are used by the shipping interests and will be improved. Large ships do not sail from Panama, but from La Boca, which is the port for deep sea going vessels. Panama is about one mile west of La Boca.

La Boca is an important place. But few people live here at present. However, when the canal is open it will be one of the busiest places in the canal zone.



**La Boca (Pacific Entrance), showing present Ship Yards.**



**This Picture is made by joining three Photographs. I stood in one position and took succeeding Pictures of the Harbor at La Boca. To the right you see the Pier, and to the Left is where the Government is making land. The Canal will be to the right of the Piers.**





The Upper Picture shows the Interior of the Screened Porch, and the Lower Picture gives an exterior View of the same. These are Views of Married Quarters at La Boca.



**A Lidgerwood Unloader. The Plow was moving rapidly when this Picture was taken. Men and Camera barely had time to escape from the deluge of earth. This dirt is thrown off so quickly that one does not realize it.**

## EXCAVATIONS



The French made a total excavation at all points, including what is called the diversion channel, of nearly 82,000,000 cubic yards.

The estimate made on April 1st of 1907 gave approximately 102,000,000 cubic yards to be excavated in the canal channel above, nearly 8,000,000 for lock sites, a little over 2,000,000 for regulating work and diversion channel, and about 3,500,000 to open a construction channel at Panama and to keep the channel open at La Boca.

While in two years and three months the Americans excavated 32,000,000 cubic yards, one year and three months' work had been done when the above estimates were made, so it is safe to say that from April 1st, 1908, nearly 100,000,000 cubic yards have to be removed, but in March of 1908 the total excavation was nearly three and a half million cubic yards. That meant concentrated effort and shows the efficiency attained by the organization. They have gotten into the right swing, and all they need now is the support of the American people.



Canal Cut at Gorgona.



**The Business End of a Steam Shovel.**

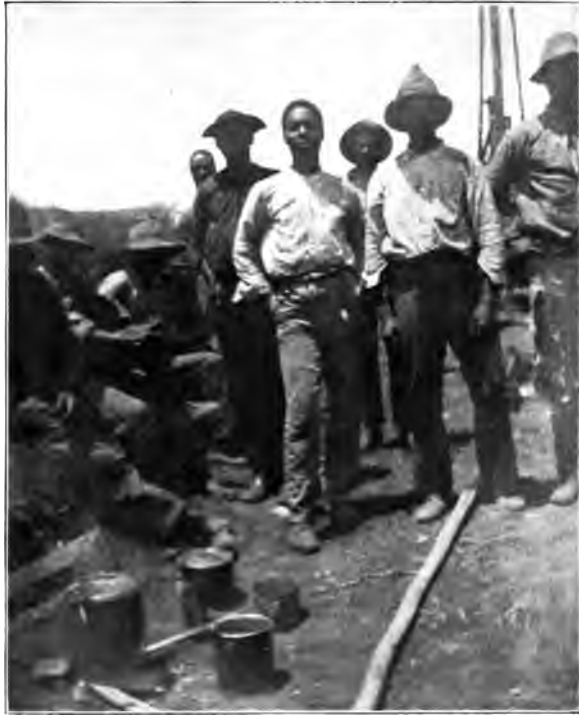
The Panama railroad, which is being used by day for hauling dirt and construction material and by night for freight, was a single track road with a few sidings. The death rate for building this road is variously stated. Often it is said that for every tie there was the life of a man. This would mean 100,000. The most conservative estimate was 2,400. This road has been practically double tracked since the taking over of the property by the American Government, and owing to the plans of the canal, the entire road will have to be rebuilt at a higher elevation and along an entirely different route. The location of the road is settled and work being done on the roadbed.

Work of all kinds and at all points is progressing both in railroad and canal, but no work can be finished until all is finished. All work is so interdependent on other work that the finished result of any one point can only be expected when it is the same at other points; in other words, the canal will practically all be completed at all points about the same time, and if proper support is given by Congress and the people this time will be approximately in the spring of 1915.

The force at work is efficient and energetic and has behind it the spirit and brains of men who are able and intelligent. The way the work has progressed demonstrates to one who investigates that failure can only be due to lack of appreciation upon the part of the people and the support of their representatives in Congress.



**Quarters of White European Laborers at Rio Grande.**



Jamaicans at Noon Day Meal. Taken on the Excavation at the Spillway.

## THE JAMAICAN NEGRO AND OTHER LABOR ON THE CANAL



On the Isthmus of Panama the Jamaican negro seems to be a discredited individual among a large proportion of the people one meets. It presented a condition of affairs that made the dusky race interesting. I started on my observations in earnest, when the Jamaican Africano who hauled my baggage tried to charge me double price and the carriage man tried the same trick; but then the white cab driver in New York tries the same dodge, so maybe I look easy and throw temptation in the paths of the guileless.

Someone, observing the splendid muscular proportions my tailor so kindly provides, and noticing my stern eye and determined mien, advised me that it cost twenty-five dollars to lick a Jamaican negro and if I did it be sure and get my money's worth. Well, you know



**A Common Method Among the Negroes in Carrying Produce  
or any Burden.**

that under my austere exterior no fiery pugilistic desires are hidden. I always refer my fistic engagements to my manager in that department, and he was busy packing goods some two thousand miles away.

Well, to begin with, I found out that there were a number of negroes who were not Jamaicans, and of course when one is judge he must hear both sides of the case. I put the question to the Jamaican Africano (this word is mine) who drove my "carry all" and his verdict on the case was that only the Jamaican negro was good; all other negroes were lazy. The Jamaican worked hard and saved his money; the others loafed and spent their money foolishly.

While this made the question seem easy, I found the colored guard divided against itself, each more or less dragging down the reputations of the other. The St. Luciens claimed they were the pick of the flock and the rest worse than cold storage eggs. The Barbadoes made the same plea for their island, so on their own testimony each crowd stood convicted by a majority of their own race of not being much good, and 'tis sad to think that I must go to their accusers to find their good points, or cull them out of the rubbish heap myself if I could.

Now I haven't lined up all the points and settled this vexing problem, but I have settled on one point; the word indolent seems to



**From Barbadoes. Every Employee of the Canal Commission has a Star Shaped Check on which is Placed his Number. You can see the Check.**





**This is a Conversation Photograph.**

fit the case; the colored people, Jamaicans and others, range from the very exceedingly provoking, exasperating, irresponsible indolents, to just plain indolent as compared with the white race.

The reason seems to be in many a pure lack of physical strength and lack of mental development, or mental energy. They seem to be born tired and have a hard struggle to get past the point of doing nothing. One way of getting work out of them seems to be by putting a gang of them under the control of a man who has grasped the salient point that he is dealing with grown people with the minds of children; allow him to teach them how to do one thing, let them respect and fear him as their superior. He will gradually weed out the "no goods" and in many cases instill a pride in others, and eventually secure as much work from two of these men as he would from one white man, and even better, if the work in question was such as not to require great physical strength.

I found this condition true in four different gangs, and in each case the credit was due to the superior mind. One man in charge of a singing crowd of negroes told me that a negro could not talk and work at the same time, but they could sing and work, so he encouraged them to sing. A successful handler of these children of the dark skin cannot be a driver in the ordinary sense of the word; he has to be a diplomat. Most Americans are hustlers and



Portion of a gang of men who had worked under one foreman two years. Good workers. Photograph taken at Empire, in March 1908. The temperature in the sun at Empire was 124° Fahrenheit.

it grates on them to see three men trying to do the work of one. I saw seventeen negroes pick up a rail that weighed 700 pounds and grunt and groan over it.

I saw two white men move a drill, and the next day saw six colored men doing the same work. This shows the physical deficiency; whether they lack the actual strength or the mental force to exert it I do not know, but I think that they are not really as strong. Illustrating their tired condition, an engineer had a colored fireman. This man was filling the boiler of the locomotive and went to sleep standing up while the water filled the boiler full. Another told me of a colored fireman who, with an iron rake, was spreading out the coal on the fire. He went to sleep at this work, with the end of the rake in the fire. The handle got hot enough to burn through the fellow's gloves before he awoke. These may be extreme cases, but they were vouched for by several people.

The English have given the colored race educational facilities and one is often astonished at the excellent penmanship of a man as black as ebony. When they have had an education they will speak as precisely as a written composition. Yet, when you hear others talk it sounds more like a man saying the multiplication table with his mouth full of hot mush. And so it is—the swing of the pendulum is wide, from the no good to the some good.



**A View looking towards Culebra. Towards the left many colored laborers are quartered. This is "Rio Grande" and white Europeans live along the street.**

One wise and very successful manager of the colored help who had about fifteen or twenty colored men doing as good work as any white man ever could do, said the first thing to do was not to hire any "drag foot nigger"—watch "how they step" a drag or a shuffle puts them out. He has had two years in shaping up his crowd and he is boss. Another successful man said he had had fifteen years' experience with this kind of help. His crew were nearly as good as white men, but he said the colored mind was incapable of moral courage or responsibility; as soon as you threw responsibility on them they went to pieces.

A man from the southern part of the United States, now working on the canal, who had been in charge of labor in Louisiana, said he had better results from the negro in the States. They could do or would do more work than the Jamaican. Here and there I found hard workers. At the Imperial Hotel the night porter seemed very obliging and efficient, and every now and then I would find some one much above the average; then one gradually begins to learn that one cannot expect so much from them and becomes less critical. If you shout at them or speak quickly they get rattled. Many of them who have the best education are almost impossible. They swell up and are impudent. Yet, you will find among this class men of ability of whom it seems unfair that they should suffer for the deficiencies of their fellows.



**Taken at Rio Grande. Laborer and family at home. The woman on the board walk must be considered as a separate incident. She wanted to be in the picture and she is.**

**On the following pages is shown four groups, intended to give an idea of the class of labor that has enabled the American foreman to carry out the work of construction.**

The women who do housework are the most inefficient of all classes as far as my limited observation went. Talk about the question paramount in many households in the United States of America, then join a circle of housekeepers on the canal zone, and the latter will give facts that will open the eyes of the ladies on the visiting committee. Here's where simple man has to fade, and yet there are some good ones somewhere, I am sure.

As I said, it costs \$25.00 to lick a Jamaican or any negro who is a British subject. When I asked one man what he was, he said, "I am from Jamaica, I'm a British object." He was proud of the distinction; he did not know the meaning exactly, but he knew, as he explained, that while you could call him all kinds of names, you could not "lay hands on his body;" he was a British "object" and it cost \$25.00 to hit; this he knew.

I interviewed one of King Edward's loyal supporters one hot afternoon. I had had a hot and dusty climb up a long and winding trail through the jungle to one of the highest points on the Atlantic side of the isthmus. In a clearing near the Britisher's hut I rested on an upturned tub. The man was interested in my camera, and though as black as black paint, his speech was excellent English. He used some quotation from Scripture, and I turned and looked,



**Group of European Laborers with American Foreman.**

saying, "What church do you belong to?" "To the Established Church of England." I followed up this question by asking him if he ever was in the United States, and he answered by saying he had been in New York for a year and had been a "beer slinger." "A what?" said I. "Why," said he, "I served beer at Coney Island." I asked him if he thought that business worked well with the Established Church of England. "Why not? Didn't St. Paul say, 'Take a little for your stomach's sake?'" "Yes, but do you? Are you not afraid it will get the best of you?" "Ah, no," says he; "one drink makes a colored man brave, and he's not afraid of any white man; and do you know that two drinks make me so brave that I could spit in King Edward's face?" Here was a man giving testimony which seems almost strange, yet it is one of the vital points. The negro, childish, harmless and incompetent, can be turned into a most dangerous animal by liquor.



**European Laborers with American Foreman, Railroad Gang.**

Well, to cut it short, do you think, taking the bad with the good, that the American nation could build the canal with the Jamaican negro and others from the adjoining islands? Yes, in time, perhaps, but what time? A hundred years? No, it is only by the influx of the white European labor, and the brains of the American foreman, that the canal can be built. The negro has a place, but he will have to get better or grow fewer and fewer in numbers; the good ones are wanted and the good ones will be kept, and more will be tried, but the lazy, drag-foot, indolent negro so common will succumb to the superior ability and energy of the White European, the East Indian and other classes of labor. The negro had a very exalted idea of his value to the Canal Commission, and became more and more useless until he found that French, Spanish and other European labor was displacing him; but a change is taking place. The colored man, because he is a tropical production, has no cinch on this job. They are working on the canal zone, not loafing, and the loafer must go.



**Construction Gang: Americans, Europeans and Negroes.**



**Construction Gang, mainly Europeans.**



**Administration Building at Ancon; Headquarters of Sanitary Department in this Building.**





**Digging Trench for Water Pipes at Empire.**

## SANITATION



The Americans took possession of the canal at Panama in the spring of 1904. The experience of the builders of the Panama railroad had taught those in control of the canal work that unless yellow fever and malaria could be controlled or eliminated it would be almost impossible to complete the canal.

Here was a stretch of country fifty miles long, with the towns of Panama and Colon at the two ends, with a number of smaller towns in between. The sanitary department had not only these two diseases to control, but also had to care for the sick, the disposal of night soil and garbage, examination of food supplies, and general conditions.

At the start if we had had military control work would have progressed more favorably; but the physicians in charge of the



**An Old House near Mount Hope. Notice the Wheelbarrow in the foreground, placed on one side to prevent water accumulating in it. "Sanitary Orders," and they are obeyed.**

work of sanitation were military men and they have developed sanitation along lines where today their authority is so recognized that things move when they speak. It is not always the brains and the knowledge that bring about desirable results, but it is the power which permits the man or men who know how to enforce the regulations for the greatest good.

It took from May, 1904, to December, 1905, to stamp out yellow fever. In the year 1905 there was a general fear among people, and it was most difficult to get employes, and if the conditions had not changed the canal probably would never have been finished.

The *Stegomyia* mosquito is the insect that, when it bites a yellow fever infected person, can carry the infection to any number. This was a theory advanced by Dr. Coles Finlary, and maintained by him since 1881. The correctness of the theory was fully demonstrated in Cuba, and Colonel Gorgas, who had charge in Cuba, was assigned to the work on the Canal Zone.

The department had to be organized. Panama was seven days from a base of supplies, and sickness made the hospitals busy. As soon as possible the fight against the causes of the disease began, carried on side by side with the care of the sick. Four hundred men were employed in a fumigating brigade; the cities of Colon and Panama were fumigated.

In Panama the entire city in the year 1905 was fumigated three times, fumigating every individual house, and in addition every block in which a case of yellow fever occurred that block had another dose. Two hundred thousand pounds of pyrethium, and 400,000 pounds of sulphur, besides other fumigating materials were used: By and by this fumigation began to tell on the *Stegomyia*.

Then the breeding places were attacked; it seems that they breed in water, so by screening or covering all water receptacles this brand of mosquitoes could not breed. And so the great battle of *Stegomyia* versus Gorgas et al. was won by Gorgas et al., but as a few remaining remnants of the pest may at any time invade the Canal Zone, vigilance is maintained.

A yellow fever suspect is immediately put in a screened room to prevent any possibility of a mosquito biting the patient and carrying the infection. All incoming passengers are examined and the greatest precautions taken. Orders, I found, were tacked up on all shops and I presume notification thoroughly disseminated, that no receptacle or tool capable of holding water can be left in such a position that water may accumulate and form a breeding place. And down on the Canal Zone sanitary orders are orders.

They have a number of doctors on the Canal Zone who are not in the army but are in the service of the government on this canal work, but what has made this work so efficient is the fact that these doctors now can know that they are working along established lines in their profession, and no untoward outside influence is working against their medical skill.

There is another mosquito, its name is *Anopheles*. It is responsible for malaria. It breeds in clean water where grass and algae grow. This mosquito does not fly farther than one hundred to two hundred yards. The work to do is to destroy its breeding places as far as possible, so around laborers' camps and villages every attempt is made, but it is impossible to do anything with swamps and the great stretches of country on each side of the canal. If one goes out hunting or on a jaunt through the jungle he is just as liable to pick up a bit of malaria as anything else. (The "*Anopheles*" will bite in the daytime as well as night. They are found in shady places, so it is difficult to keep people from being infected by this malaria mosquito.)

The sanitary department advise the taking of three grains of quinine every day. This is considered to put the individual in such a condition that the parasite of malaria will not thrive in the blood.

To kill breeding places, all laborers' camps and settlements are drained by concrete ditches or sub-soil drains. Everything is done



**Nurses' Quarters at Colon Hospital. The Picture on the right shows the Water in Front. The one on the left shows the Water Front Filled in. Work of Filling in Low Spots is going on in many places all over the Canal Zone.**

to prevent standing pools of water or ditches where grass and vegetation will grow, and this requires careful work and constant supervision. The heavy rainfall and the luxuriant growth of tropical vegetation make the work all the more difficult.

Every month shows new places to take care of, new conditions, change of camps, progress in work, all requiring the most careful watching of the sanitary inspector, and the follow-up work of the sanitary brigade; houses to be screened, depressions to be filled, spaces around camps and villages to be cleared and land mowed, cleaning ditches, oiling, and making new ditches and grading. Then the canal prism, that is the big ditch, has to be watched, for water will accumulate in low spots after rainfall.

The sanitary department has also the drinking water to care for, and the country from which this water comes, the water shed, is guarded for cleanliness by strict laws, and you want to look out you don't break them. Laws are made for the sake of health and they are enforced. Health is the preëminent asset of the Canal Zone and must be preserved, and the "must" is in big type.

In March, 1907, the sanitary department reports 36,387 employes on the pay roll and 122 deaths, and in March, 1908, with 43,276 employes on the pay roll and 45 deaths. In March, 1907, 1,576 cases of malaria among employes admitted to the hospital; in March, 1908, only 533. In March, 1907, among the causes of death were 9 from typhoid fever, 53 from pneumonia, 16 from malarial fever and 12 from tuberculosis. In March, 1908, one death from typhoid fever, five from pneumonia, nine from malarial fever and three from tuberculosis. Each year shows an improvement over the previous year.

Bubonic plague exists along the west coast of South America and as far north as San Francisco. Here again our sanitary department were aware of the work and precautions necessary. It has been



**A View from the Rear of the Imperial Hotel, showing How One-Half of the Street has been Filled in. Work is Progressing on the Other Portion. The Track is a Temporary one, put there in order that the Earth and Rock can be brought in from the Canal Excavations.**

ascertained the plague is carried by rats and the infection spread by a species of flea that infests the rat.

Any ship leaving an infected port has pretty stiff quarantine regulations; they have to be fumigated and disinfected upon leaving the port, and certain kinds of cargo are prohibited, especially food products attractive to rats. Then the vessel is held for a sufficient time to make the total time from the date of fumigation to be six or seven days. And do they live up to it? Well, you may be sure they do, and if not strictly up to the letter of the law, they are fumigated again and stay in quarantine six days.

In a few months rats will be scarce on the Canal Zone. The bubonic plague has existed in ports from which shipping comes for four years. In the fall of 1905 there were two cases of bubonic plague. The sanitary department acted quickly and effectively. Today a rat exterminating battle is on. Rat poison was tried, but rat traps are the thing, and after rats are caught they are cremated. A



**A Native Child drawing water from one of the hydrants installed at the suggestion of the Sanitary Department.**

large number of traps were ordered and are now doing work. When one considers what these doctors in the sanitary department have to think of it makes your head swim; they are rat catchers, bug killers, garbage removers and incinerators, sewer diggers, special police, fumigators, food supervisors, ditch cleaners, and jungle cleaners.

And this is not all. In Colon they have ordered the raising of the street levels and the filling in of the depressions under the houses. They have paved the streets in Colon and Panama.

You will see people going to one of the many street hydrants and drawing pure, fresh water, all sanitary regulation and suggestion, and the water is free.

When the work of sanitation goes beyond the functions of doctors' forces and becomes a construction and engineering feature, the engineering department take it up and do the work.

The sanitary department has demonstrated its value. It exists so that others may live and enjoy life, so others may work and the great task completed. What the sanitary department does is not for the glory of its doing, but that others may use their faculties and abilities to the fullness of their powers. It is the servant of the people and as the wisdom of its efforts become more and more apparent, every employee of intelligence on the Canal Zone becomes a part of the sanitary department.



**Boiling their Beds to Rid them of Bugs.**

#### INCIDENTS OF SANITATION.

I saw a number of colored men standing around an iron tank about seven feet long and four feet wide. The tank was raised about ten inches or more from the ground, and underneath it was a wood fire. The tank was filled with boiling water. Nearby was a negro sleeping house. In these houses the bunks are oblong metal frames with canvas stretched in the center; this forms a comfortable bed in this hot climate. These bunks are easily taken down.

On the grass were a number of these bunks that had been wet and were drying in the sun. Others were being brought out and dumped into the boiling water. When I inquired what they were doing they said, "Cleaning house." You see the bugs get bad and we can't sleep, so we just boil them and they are all right, and they were.

I sat down to a table and thought the bottom of the table legs looked queer. Each leg was set in a tin can and the can partially filled with oil. When I asked the reason, the answer was to keep the ants off the table.

The maid used to oil the joints and crevices in my iron bedstead at Colon, and when I said why, she replied: "It is better so." And it must have been as she said, because I was comfortable. Fleas bother some people very much, but I did not have any trouble with them.



A Portion of Ancon Hospital.

## HOSPITAL AT ANCON



A lady and I visited the hospital at Ancon. It is located on the hills back of Panama; the air is fresh as they get a breeze nearly all the time. The beauty of the location is difficult to describe; it is pleasing to the eye as you approach along the ascending drive-way, and the view of the surrounding country is equally as impressive.

The buildings are of frame with porches. The illustrations give a better idea of the construction of the buildings.

There is a general office. It was here we called and met the General Superintendent, Major Phillips, from these offices, under the guidance of the Major, we visited the store house where supplies of all kinds were kept; dishes, clothing, shoes, linen and all hospital necessities. In a separate building drugs and medicine were stored, and a regular shipping department arranged to fill orders from the different wards. We saw quinine tonic by the barrel; this is sent in quantities along the canal to stations when required.

They have wards for Americans, both surgical and medical; separate wards for European white, and also separate for colored and separate wards for women. Twenty-one wards in all for these purposes. The operating room department, is a separate building thoroughly equipped with all the latest surgical appliances and X-Ray apparatus; and near there is a complete medical library, and in this same building is kept a history of all the cases passing through the hospital. In addition to the store room and distributing room for drugs, there is a complete laboratory.

In addition there is a building for tuberculosis patients, and a new building was just being completed for contagious diseases, but





**A View of Department for Insane. Hospital at Ancon.**

they have only had one case and that a case of measles. This building was noticeably small.

Under the jurisdiction of this hospital there is a separate department for insane, in which all the insane of the Isthmus, both the Republic of Panama and the Canal Zone, are taken care of. This has eleven separate buildings. Some buildings are divided into cells, others regular hospital style. The men and women are kept in different buildings, and the whole is enclosed by a high fence. At the present time 160 patients are there, mostly colored.

The hospital has a large central kitchen where all the food is prepared. The wards have subsidiary kitchens, and the food is distributed to these places where it is heated when necessary. This takes a great burden off the individual wards and seems to be a desirable arrangement. The central kitchen distributes food to all kitchens attached to quarters; these kitchens are equipped with gasoline or electric stoves to keep this food warm until served. These kitchens were furnished with ice boxes to keep such food as required a cool place.

Besides the homes for the officials, there are bachelor quarters for male employees of the canal commission, who may be assigned to them. A general mess for men; delightful quarters for the female nurses, which include dining room, sitting room, library, separate bedrooms for each nurse, wide piazza or veranda, commanding a beautiful view and a fine breeze; and we must not forget the garden at the nurses' quarters, one lady making a specialty of collecting orchids.

Some of these buildings are old French houses which have been renovated; others are new. The drainage and water supply is as



**Three Views of Hospital Grounds on Hill at Ancon. These Grounds are at a High Elevation.**



**An Interior View. A Patient in one of the wards;  
of the Hospital at Ancon.**

near perfect as engineering skill can make. All buildings are perfectly protected by screens against flies and mosquitoes. The laundry is a steam laundry with about eighty employees; the latest machinery and devices used. This laundry does work for the hospital and also does private washing for employees of the commission. The Hospital washing, however, is kept entirely separate from all others. (Hospital wash is sterilized.)

The greatest courtesy was extended and every opportunity offered for close inspection. One is impressed with the discipline, neatness, and cleanliness of all parts of the hospital, and also with its desirable location high above the sea level. To walk up to any of the wards is a warm climb, but the view and the breeze repays one for the effort.





**A Rear View of the Tivoli Hotel as Seen from the Grounds of the Ancon Hospital.**

## ANCON AND THE TIVOLI HOTEL



Ancon adjoins Panama, and the Tivoli Hotel is the largest thing in Ancon. It is like a large summer hotel in the States, only it is different. It is owned by the Commission, or rather by the United States, and has been opened to the public. You are charged from \$3.50 up, for room only, 50 cents for breakfast, \$1 for lunch, \$1.25 for dinner in the evening.

You kick vigorously or mildly at the meals, according to your disposition, for the cooking is very poor; *oh* very poor. You don't mind the price of the room so much if you have been in Colon for a time, you know that you have to pay for rooms everywhere, and that the Tivoli have fine ones.

After you try a few meals at Hotel Central, in Panama, you do not kick so hard at the Tivoli Hotel meals. You begin to realize for some reason or other that outside of the private families, where the wives do the cooking, that the art of preparing food is a lost one. I had four meals as the guest of one of the employees at his home. His wife did the cooking; she couldn't get a cook. Well, those were the best meals I had on the Isthmus. I had two other good meals, one as the guest of an engineers' mess, and one that I had prepared specially.

You begin to find out that it is harder to do some things on the Isthmus than it is in the States, and that is to get cooks and help for hotels, and you feel very grateful at last that the Commission opened the Tivoli Hotel. Of course, you feel grieved to find that there



**This is the Tivoli Hotel, as you approach near to it in your Drive from the Railroad Station at Panama to the Hotel.**

are some very fair rooms for a dollar and a half a day, that you didn't know of until you were departing, but this hotel, which is a vital necessity, must be run as a business proposition. It is used as a meeting place for the people along the canal, and is a lively place on Saturday night.

It has had one good effect upon the Panama Hotels—they have to do something to compete, and that something is to give their patrons service.

The sanitary conditions of the Hotel Tivoli are excellent, and it is as clean as the best hotel in the States.

At the Tivoli Hotel, Ancon, on Saturday evening, February 29th, a flower dance was given. It was the first dance given by the Ancon Women's Club, and was a very pleasant affair. The guests of the Hotel were invited, and I accepted the invitation. Men and women from all along the Canal came in to Ancon that night, and many dress suits were brought out for the occasion. The summer dresses and flower decorations were quite unique to think of when just a short time before, snow and cold breezes were my companions.

These Women's Clubs are causing much discussion. The representative of the "Women's Federation of Clubs," in the United States, came down to the Canal Zone and organized a number. The The Ancon's Women's Club, composed of the women of Ancon, was organized in the early part of 1907. The objects of the Club are social, literary and educational. They have business meetings once a month and other meetings for pleasure as directed by the officers.

On Friday, I spent the afternoon at Empire and attended a minstrel show given by the Thespian Club, a Woman's Club, all Canal Zone talent. The entertainment was a great success, and



**The View from my Room at the Tivoli, over Ancon.**

it was astonishing to observe the talent exhibited by the women and the few men friends that assisted. The people here feel the lack of entertainment, and they are filling the gap, to a certain extent, by their own efforts.

The Women's Clubs are growing, and doing good work.





**Interior View of Rooms in a Commission House at Culebra.**  
The best Meals I ate while in the Canal Zone were those prepared by the Wife of one of the Men stationed at Culebra, and whose Home was in one of the Commission Houses. The Food that is Sent to the Canal Zone is good, and when prepared by a good Cook it is appreciated.



Two Friends on the Shore at Old Panama.

## OLD PANAMA



Old Panamá, in the seventeenth century, was one of the wealthiest cities in the world. The city was reputed to contain over twelve thousand buildings, many of them stone. There were monasteries and a magnificent hospital. The wealth of old Panama excited the envy of the world.

Towards the close of 1670 Henry Morgan, the buccaneer, with a following of about two thousand men, made a nine days' march across the isthmus, attacked the city and gained complete control. The beautiful city was sacked and destroyed by fire. This fire happened two hundred and thirty-eight years before I crossed the isthmus (February, 1908).

A friend and I visited old Panama together. He had been on the isthmus a year and had never seen it, and I was told that I must not miss it. The best way to reach it, some people will tell you, is to ride over on horseback, but a carriage was good enough for us, and perhaps for our comfort was better. We drove through the outlying district of this, the real Panama of today, and along a smooth country road for a mile or more, past some comfortable residences, and then struck off across the open fields where here and there faint wagon tracks indicated the way. After three miles of this traveling we entered the jungle. Our carriage could go but



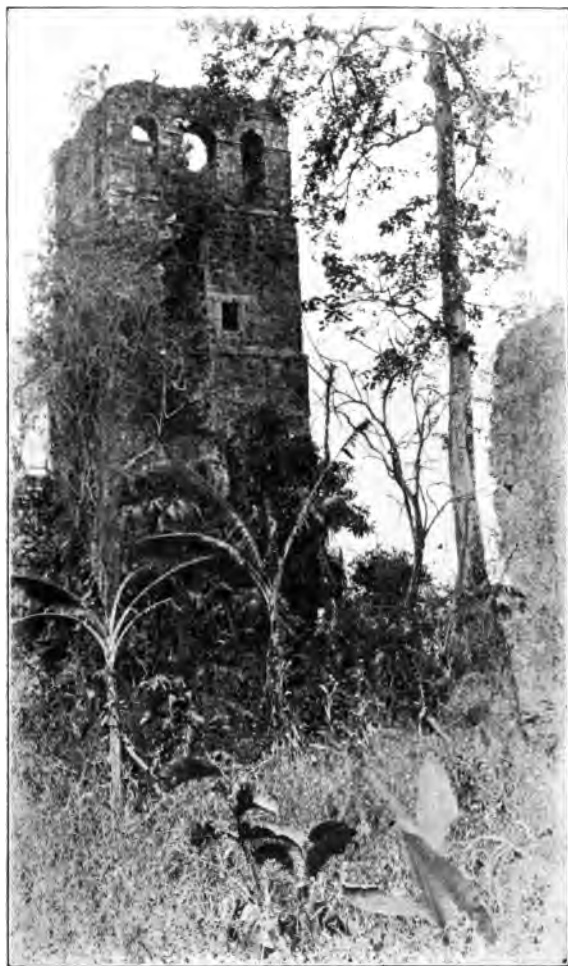


**A Trail through the Jungle at Old Panama.**

a very limited distance. An eighth of a mile walk along the trail brought us to the beach. The shore spread out like a horse shoe, the tide was out and the shelving, sandy beach, fringed at its water's edge with a black, shallow ridge of mud, stretching for a quarter of a mile out to sea, made a unique picture.

The ruins we were to see were nearly a mile from the point where we had reached the shore. It was 11 o'clock, and the sun shining overhead made the walk through the heavy sand hot and tiresome. We reached the ruins, consisting of the tower of a church, St. Augustine, and many ancient stone walls. All approaches were covered with jungle growth. We found two others on the same errand as we, and compared notes. The place is historic, but the next time anyone mentions it I will advise him to read some old book of legends, look at a few pictures and let it suffice.

There is a tunnel in the old tower, and in days made dim by the many years that have passed, but kept fresh by ancient history, a priest buried much treasure, precious stones and gold under the old tower. Everyone who visits the place finds gold or jewels. One man, we were told, found a ruby, which he sold in New York for two thousand dollars. No one seems to know the name of this man. I might mention that none of the four who visited the place on March 1st, 1908, found anything except ticks and fleas and discomfort.



**Ruins of Old Panama. Tower of the Church St. Augustine.**



**Old Stone Wall, ruins of Panama.**

Commercially, Old Panama was great. The few stone walls, old foundations, and its church ruins are monuments of an adventurous people, and even in their day, more than two centuries ago, the idea of an isthmian waterway was considered.

On the return the tide had turned and we had to hasten or get our feet wet. This tide comes in about thirty inches or more an hour. Between tramping on jelly fish and chasing away sand flies, the return was very interesting. We lingered long enough to take snap photographs of a Spanish family on a picnic, a hunter, and a thirty-inch shark and a fisherman.

The wife of the Spanish man and mother of five children was doing a little fishing with an old felt hat, and caught a half dozen small fish several inches long. We would see large fishes jump from the water, and half-naked men would wade thigh deep and cast nets. Evidently this shore is good fishing.

On our return to town we passed a board enclosure. A crowd of Panamanians were coming out, and we counted no less than six game cocks, carried by their respective owners. One excited individual held up his bird and cried out in English, "He win."

Right on top of this crowd we came to another but different collection, women and children only. They were throwing water over each other. I jumped from the carriage to take a photograph, but no sooner had I left my seat than a bucket of water was thrown



**View of opening in Tower at its base, showing thickness  
of Walls.**



**The man to the left is full grown and is a Hunter. The young man to the right is holding a thirty inch shark, taken on the Beach at Old Panama.**

over my companion and my turn was next. Our driver became excited, and was as eloquent as his vocabulary would permit. Two native policemen advanced—notice, I say advanced—they did not run. They would have detained us for a conversation, but the impression conveyed was that the people were only playing and meant no harm. It was the first of the month, everybody was happy, and we were not the only persons who were wet. The people continued to chase each other. We drove out of range and watched them for a few minutes, and then continued to our hotel, where a late luncheon awaited us.

In the afternoon we went to the ocean side, in New Panama, the Panama of today, and watched hundreds of pelicans fly and dive and fish. They were so numerous and so many would dive at once that it looked as if someone were throwing stones in the water. These pelicans seemed to catch a fish every time they dove. The water along the shore must be alive with small fish, like the waters near the shore of Old Panama.



**An Old Bridge crosses a Stream near the beach. It is at the opening of the Trail through the Jungle. We stepped across the Stream on our trip at eleven a. m.; but two hours afterwards upon our return, found the tide had widened the stream to a River, and within an hour more the land on the left will be covered and the stream will be a Lake. This bridge has spanned the incoming and outgoing tide for over 240 years.**



**Drawing water from a Public Hydrant to throw on Passers-by.**



A Small Park in Panama which we passed on our Return from Old Panama.

## PANAMA



Shortly after Old Panama was destroyed a new Panama was built. It is the Panama of today. The city is laid out on a rocky point; a wall from thirty to sixty feet high extends along the shore. In some places the wall was double, a moat being made for further protection. The Spaniards had no intention of being caught again in an unfortified city, and even today much of the old wall remains.

All buildings in this new Panama were built to be used as forts; the houses of stone have walls three feet thick, and heavy doors on the ground floor, windows on the second floor. The houses of Panama are mainly of stone and cement.

The windows in churches are nearly twenty feet from the ground. One is impressed with the similarity of this town to other Spanish towns in the older Spanish settlements in other parts of the world.

The ground floor of the houses are given up to negro families, stores, work shops, etc., while the better class of people occupy the upper floors. Small porches overhanging the street are used by the families occupying the upper floors.

The streets used to be paved with cobble stones. They are narrow and crooked. The treaty with the Republic of Panama gave the United States control on the question of sanitation, and the Commission has had the streets repaved with brick, water works put in, and sewers laid; had all cisterns removed, and cleaned up



**Avenida Central, City of Panama.**

the city. The water for Panama comes from the upper or Rio Grande reservoir, and is good water.

Panama has an ice plant, telephone system, and electric light plant, but no street railway. You walk or pay 20 cents silver per person to ride in one of the numerous carriages, or you can hire them by the hour. A fixed tariff is made and you can secure a printed copy. If you are overcharged you can call a policeman, and the chances are you will come out all right. It is wise to take a carriage driven by a man who speaks English.

The view of Panama is picturesque, and the narrow streets and old buildings interesting. The shops are full of quaint Japanese and Chinese importations, and some of the most enterprising merchants are Chinese.

The hotels are not good, but one can find worse ones in other cities. The Panamanian treats the American with courtesy and at no time could I find any but the kindest feeling among them. The object lesson of the Commission management is not lost. Panama is a comparatively healthy and comfortable city.

There are a number of old churches or church ruins in the city. San Felipe Neri was built in 1688. It has a plain front, a tower of Moorish type. In the round cupola, fastened to a cross bar, are old-time bells. This church is near Plaza San Francisco, and looks as if it was built partly as a fort.

The ruins of Santa Domingo are partly overgrown with vegetation. The church has a span of sixty feet, and the arch is so flat that it looks horizontal. "In the erection of this arch, after several





**Looking towards the Flat Arch.**



**Looking away from the Flat Arch.**

**Ruins of Santo Domingo.**

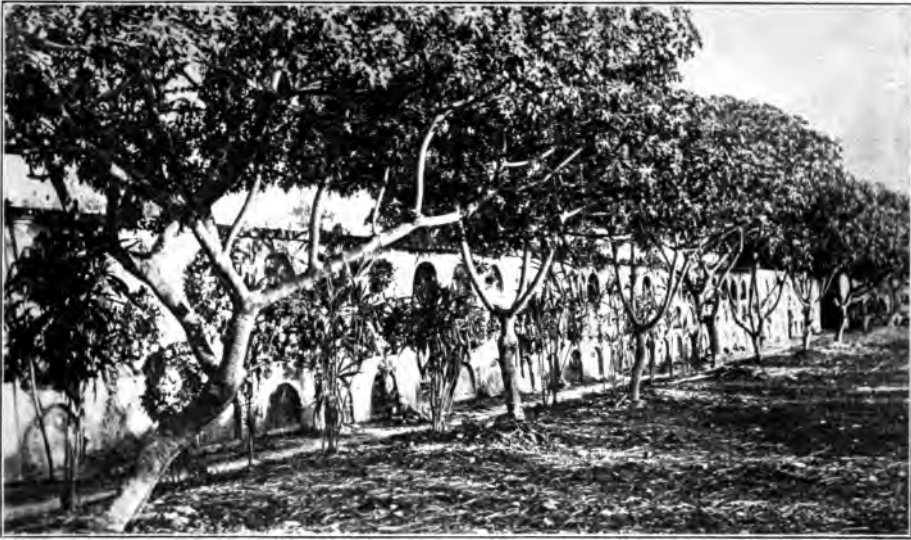
failures, a priest stood under it until it was completed, and it did not fall."

The Cathedral of Panama was built by a colored bishop of Panama. This bishop was the son of a charcoal burner, and was born on the isthmus. The church was built over 148 years ago. It is said that the bishop built it out of his private fortune, and completed the work in 1760.

There is the Church of La Merced, San Juan de Dios, St. Ana, and others. The church of San Francisco, facing on Plaza San Francisco, is a large one. It was built early in the eighteenth century.

In the last two hundred years Panama has had considerable activity in the way of attacks, fire and earthquakes, and it is not to be wondered that these churches have suffered somewhat. They are good ruins.

The cemeteries of Panama are quadrangle in shape, surrounded by three tiers of bovedas (a boveda is a niche just large enough for a coffin). These bovedas are leased for a term of eighteen months, and the opening bricked up. When the rent for one of these spaces becomes overdue the contents are removed and the



**View of Interior of Grave Yard at Panama, showing Catacombs.**



**A Close View of Catacombs, Bovedas.**

space is for rent. When the space is permanently leased a tablet is erected.

This idea of leases on bovedas seems to have come from Spain. The practice, no doubt, is being abolished, as the Panamanians seem to adopt many American customs; and then it no doubt comes under the Commission's supervision, and I do not think they approve of many of the methods of the past.



**Entrance to Ruins of Jesuit Church, Panama.**



**Ruins, Jesuit Church, Panama.**



**Old Church at Arrayan (Village in Interior), showing Bells with date 1729 on them.**

## CHURCH CONDITIONS



The church conditions on the Canal Zone are peculiar. I met the Rev. Henry B. Bryan, Archdeacon of Panama. He spent practically three weeks on the isthmus in August, 1907, studying conditions and has been located here now (March 4th, 1908) about four months. The Canal Zone from its extreme limits on one side and the Magdalena river on the other, and from the Atlantic to the Pacific Ocean, was a part of the English Diocese of the Honduras. The Church of England was established twenty-six years ago, when the French began canal operations, and there were ten congregations of English subjects.

The Panama Railroad and the French Canal Company furnished suitable places of worship for these congregations. Three years ago when the Americans took charge, the Episcopal church was transferred to the American church. The transfer was completed January 1st, 1908.

The following is an extract from the Rev. Henry B. Bryan's report:

### *Church Privileges.*

The French company for building the canal took the Roman Catholic religion into the little settlements of workmen along the line. It built chapels for the Roman Catholics and a few for Anglican (colored) churchmen. These structures remain and some

are in use. We have seven and the Roman Catholics use five of them.

The Roman Catholic bishop of Panama lives in that city and has a "college of priests." The plan is much like an associate mission. These men are sent up and down the railroad to minister to their people in the small villages and settlements. These settlements were started in the days of the French Canal Company; some of them have as many as 1,000 inhabitants.

There are 10,000 Jamaicans in the zone who are strongly attached to the Church of England and her services. They readily accept clergy in American orders. Your envoy was received as the representative of the American church and was accorded every courtesy and consideration by the two English clergymen and by their people. While the Anglican Book of Common Prayer is used in the two parish churches and mission chapels, prayers for the President of the United States, for the President of Panama are said, as well as those for the King and Royal Family of Great Britain.

At Colon there is a parish known as Christ Church (550 communicants, colored), of which Archdeacon Hendricks, a native of Jamaica, is Rector. His official signature reads: "Archdeacon of Panama and Rector of Colon."

At Panama there is another parish, St. Paul's Church, with about the same number of colored communicants. The Rev. Geo. A. Eskens is the Rector.

Although the Church of England has been at work for thirty years and has seven missions, besides two parishes, she has accomplished scarcely anything among the whites—the Englishmen and American, in attaching them or even holding them in the Church.

Theory and practice are at variance on the isthmus in matters of Church extension, as they are in many parts of the U. S. It has been the policy of the Church of England clergy to try to unite whites and blacks in the public worship of the Church. Archdeacon Hendricks has dominated the Church work and life in these parts for fifteen years, and has steadily adhered to the "mixed" congregation policy. Bishop Ormsby seems to have coincided entirely with the above policy. The Bishop visited the Colon parish every twelve months, spending two weeks on the isthmus.

Since the purchase of the canal property at least 10,000 Americans (whites) have come into the country. They are at very accessible points for missionary work, as they live along the line of the railroad and canal operations. This "mixed" policy has failed to reach them. Although seats are set apart and reserved in both parish churches and missions for white people, they are seldom occupied. New-comers attend for a few times and then cease to go to church. It is the race or color question transferred from the United States to the Zone and Panama.



**Jesuit Cathedral Ruins, Panama City.**

Bishop Ormsby steadfastly refused to acknowledge the necessity of providing separate church edifices for whites and blacks or Jamaicans. There has been no improvement in these matters in many years.

#### **OTHER MINISTERS.**

Besides the Roman clergy at least seven ministers do work in the territory. Three Baptist, one Presbyterian, one Campbellite and two Methodist ministers are doing evangelistic work, but are not sent out by any organized society."



**Cathedral, Panama City.**



**"Loteria de Panama." The Second and Third Floors are Residences. One of the Large Buildings of Panama.**





**Fishing Boats at Ebb Tide, Panama.**



**Fishing Boats on Market Day at Ebb Tide.**



A Street in Panama.

## A FIESTA IN PANAMA



The day before Lent, at daybreak, a fiesta started. The native population, the Panamanians, wore their gala attire, and something in the way of mild merrymaking was going on at most of the villages. As the day advanced and dusk approached, the number of women on the street increased; their dresses were of simple material but gorgeous in decorations, and scant in proportions at the shoulders but exceedingly full in the skirt. Decolleté was the style in gowns, and bright red shoes were numerous.

When the sun had hid itself and artificial light prevailed, the streets presented a different sight from the daytime. Eight of us walked along the middle of the street and walked up one street and down another. On all sides there was the rhythmic beat of drum, chant of voices and scraping of feet. On each side of the street tables laden with food and lighted by oil lamps were spread to catch



**A Street in Panama. On the night of the Fiesta this Street was alive with Merry-Makers.**

the hungry. The activity of the merrymakers seemed to be among the poorer classes, and these were much easier for us to find.

There was much dancing, both indoors and in the street. One dance we saw was simply a man and woman standing close and walking around in one direction and then reversing; but in the majority of cases the man stood from six inches to two feet away from his partner. They would sway their bodies and wave their arms to the time of the beat of a drum or drums, and musicians standing in the center and the dancers circling around them in the reverse direction from the hands of a watch. The women carried candles aloft in the right hand, and their progressive motion seemed to be sort of a shuffle; round and round they circled, new dancers breaking in and old ones falling out; dusky belles with the air of queens cast disdainful looks upon undesirable partners who tried to force their attentions, or coy and coquettish glances would encourage the desirable man.

All the time these dances were going on a sort of chant would be sung. In the open front of the houses women would be seen dancing with women, and everywhere the people seemed to be intense in their interest of the dance. When a man and woman danced alone and not in the groups which we saw on the streets, they circled around each other and their steps and motions were more graceful, much like the Italian dance. If the young man is engaged to the girl, he carries a bottle of cologne and as they circle around with slow and graceful movement he throws the cologne on his fiancee in frequent and small drops as his arms wave in time to the music.

These festivities, of course, range from the grotesque to the beautiful, according to the character of the people, but it is all meant to indicate the last of the festivities before Lent.

If the girl dancing has hats thrown at her feet it means an evidence of admiration, and her partner dancing with her at this time must "stand treat" and buy liquid refreshments for the crowd, both men and women. The liquid refreshment is not of an intoxicating nature. It is very complimentary for a girl to have hats thrown at her, and the more partners she gets the more popular she becomes, and this is one way they have of designating who is the belle of the evening.

This festivity is in a measure a Mardigras, but much less in decorative features. After the Lenten season they have this again for a week, but before Lent, I was informed, it is only one day in duration, although some did not stop until the evening of the following day, and the festivities may be continued longer in some places than others.





**Mrs. Ruth Anderson Reehr Concert Company.**

## A CONCERT IN PANAMA



There was excitement at the Tivoli, and Panama was alive. As the hour of eight approached the rushing sound of wheels and the clang of bells and the hist-hist of those calling for carriages gave evidence of something going on. The Ancon Amusement Association was giving a concert at the Metropole Theatre, Panama. We went. Time flies here as elsewhere, and thirty minutes elapsed before the curtain arose. The seats, wooden chairs, were hidden from view by the audience. This means that standing room only was about correct, although here and there a few chairs were vacant.

While white costumes predominated both on men and women, a few regulation dress suits were in evidence. An air of expectancy filled the house, for four American women were to entertain us. Electric fans buzzed and a faint illumination from the scattered electric lights made the darkness visible. About 8:25 some one beat a piece of iron with a hammer, or at least it sounded so, and in five minutes the "non-asbestos" curtain arose.



**Entrance to Metropole Theatre.**

A street scene of some back street of somewhere, with a white mountain for its background, was our first view, but we forgot it when our talent appeared. Each selection called forth an encore and the event was enjoyed. The quality of the audience was good. The building—the Auditorium—was poor. It was of wood as plain as a barn, the whole painted a dull lead color, the roof of corrugated iron and not ceiled. Yet it is the only available theater in Panama, a city where good music is appreciated.

But not for many months will the Panamanians have to wait, for on the water's front is a new building of marble, steel and cement, one end the President's palace and the other the most complete and beautiful theater one can conceive. It has an orchestra circle with two hundred and seventy-six chairs; an amphitheatre with one hundred and eighty; two stage boxes, five chairs each; two tiers of boxes, twenty-five of which have eight chairs each; and the President's box in the center of the second tier has seven chairs. The gallery has three hundred and eighty-four seats, which makes the total seating capacity one thousand and fifty-seven.

The portion reserved for the stage is about as deep as the main floor of the theater, and is twice as high. Electric lights and fans are placed just right. The lavatories and conveniences for patrons are modern. The curtain is about thirty-six feet wide and thirty-



**National Theatre, Panama.**

three feet high and is decorated. The dome and foyer have beautiful paintings. All this was done in Paris by Robert Lewis, a Panamanian. He is now Consul General to France for the Republic of Panama and is of English ancestry.

\*This theater was designed by F. H. Arosemena, a Panamanian engineer, and this government building is on the site of an old theater which Sarah Bernhardt opened some time during the building of the Canal by the French. The Metropole Theater, which is nothing but a barn, is about two years old. However, as the new theater opens the latter part of May or early part of June, 1908, our American girls on their second tour may have a suitable place to appear in Panama.

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\*The National Theater building was designed by G. N. Ruggieri of Panama, and constructed under the supervision of Mr. F. H. Arosemena. According to newspaper report this theater was opened the latter part of April, 1908.





The View of Panama from the Petite Louise, as we Start on the Trip to Taboga.

## T A B O G A



Along the Pacific coast of Panama islands are numerous, but of them all the island of Taboga is one of the most beautiful. It is mountainous, yet much of the land is under cultivation. Taboga pineapples have a reputation all over the Canal Zone, and mangoes, oranges and other fruits are cultivated.

The island is twelve miles from Panama, and is a favorite resort for people from the mainland.

A sanitarium on this island was established by the French and has been enlarged by the Canal Commission, and the convalescents are nursed back to health at this sanitarium.

At Palo Seco, a point on the bay west of La Boca, is a leper colony. This is on the way to Taboga, and the boats carrying passengers and supplies to Taboga also carry supplies for the leper colony. These supplies are transhipped to a small boat, that comes from the leper colony some distance from shore.

The Steamer Petite Louise carries passengers and supplies from Panama to Taboga, and leaves Panama at an indefinite time and arrives at an indefinite time. It has a schedule, but does not seem able to follow it. The cause of delays are numerous. I took the trip with two companions, a lady and gentleman. We were told if we did not get there at a certain time—low tide—the lady would have to be carried, and as she felt afraid to risk the carrying part, we were on time. The tide was out and we walked fully a half mile over rocky and muddy shore to a small boat, and were rowed a mile from there to the Petite Louise lying in the bay. We waited an hour and a half for this relic of the times of the French to start, and at last, loaded down with people and supplies we were off. It





**Discharging Supplies from Petite Louise  
for Leper Colony.**

was a most delightful ride, cool and pleasant. Near Palo Seco the leper supply boat met us and took a small portion of our cargo.

Every thing seemed beautiful, the clouds played hide-and-seek with the sun; the tints on the water changed with the light and the rocky and foliage-covered shores of the mainland and islands were restful backgrounds for the expanse of water.

Within two hours the island of Taboga grew nearer, the Sanitarium loomed up, and the old town of Taboga to the right made a picturesque view.

We were met at the landing, made a short inspection, and had the opportunity of purchasing a meal at the Sanitarium. A number of convalescing patients were with us on one trip. These remained, and well ones who had had the benefit of the sea air returned with us on our voyage back.

This island was inhabited during the time of Morgan, the free-booter, and is rich with anecdotes and relics. One of the nurses who has been on the isthmus for over three years, gave me the following:



**Sanitarium at Taboga.**

"Some things that I have learned, are, that Taboga in its quaint legendary way, has many attractions. One is a large black cross on the highest point of land, at the extreme south, placed there by a Spanish priest, who was driven there during one of the early rebellions on the mainland, to starve or be killed by wild beasts. Instead he found peace and plenty, and in thankfulness to God he raised this cross to let others know that Christianity reigned, putting a light there at night to 'Guide Others.' Every year during 'Fiesta' week, just before Lent, a procession of natives go up the mountain and hang a lighted lantern on the cross for twenty-four hours.

"In the cove at the foot of this mountain is what is called the 'Fairy's Well.' In among the big boulders is a shallow well, lined with mother of pearl shells and fringed with green moss; strange to say, it is filled with very cool fresh water; to look into it is like looking into a magic mirror. The natives come here and fill jugs with water for the sick.

"At the extreme north are three crosses. In the early days of Taboga's native dwellers a 'Ship of Fortune' came into port with three leaders on board. After being entertained by the natives, and surprised to find beautiful girls there, they decided to give a grand ball on shipboard, issuing invitations to the effect that the women would be shown on board first, followed by the men. As soon as the last woman came on to the boat the gangway was closed, and they started to sail away. But the natives took to their boats and caught the ship before she reached deep water. The women jumped



**Interior of Old Church.**

into the water. Determined to have the women the strangers came back to shore, and fought; the natives took to the hills, the strangers following. When the crew saw the last leader fall they took what women they could and sailed away, never to return. The three crosses mark the resting place of the three leaders.

“Another: On the water front of this mountain, as you climb up, you come to a shelf extending out over the water. When the water is clear you can look down many fathoms and see the ‘Mermaid’s Garden.’ It is the most beautiful coral, white, pink, yellow, blue and green. Branches and flowers most exquisite in shape and color. It is too deep and swift for the natives to dive for it.

“Again: The path leading to the ‘Treasure Cave’ is very beautiful when the cactus is in bloom, hanging in such a way as to hide the entrance. Legend says ‘Morgan hid his treasure here; it is a very large cave, perhaps two hundred feet deep, and very dark. Only lanterns are useful, because of the strong draft. It can be reached only at low tide. A large boulder guards the entrance in such a manner that only a few of the many looking for it find it.”



**Landing by Boat from Petite Louise.**



**A View taken from the Sanitarium.**



**A View of the Village of Taboga taken from the Sanitarium.**



**A View taken from the Sanitarium at Taboga.**



**Old Church at Taboga.**



**A Close View of House in Old Taboga.**



**P. R. R. Railway Station, Colon, our Meeting Place at 5:30 a. m.**

## AN EXCURSION DOWN THE CHAGRES RIVER FROM OLD GATUN TO FORT LORENZO AND THE CITY OF CHAGRES



I was advised to take an excursion down the Chagres River, and on Saturday I made arrangements for two friends to join me for the next day. It was necessary to get up at 4:30 A. M. in order to get something to eat and catch the 5:30 train from Colon to Gatun. As usual, when I try to get up early, I awoke at one, then again at two, at three and four o'clock. This gave me plenty of time, so I bathed and shaved and felt in trim for the coffee and bread and butter and bananas that were served for my morning meal. At 5:15 our little party were at the railway station. It only took twenty minutes for the train to make the trip. At one of the way stations three engineers boarded the train. They had been hunting all night; one eighty-five-pound deer was the result of their night's work, and they were a tired and sleepy lot.



**At Old Gatun, our Starting Place.**



**In the River at Old Gatun.**





The Cayuco that Carried us on our Trip.

When we arrived at Gatun my friends, who had not had anything to eat, went up to the mess to get breakfast, and I started to old Gatun to hire a boat, a native boat cut from the trunk of a tree. It is called a cayuco (Ki-u-ko). To secure one I first went to a Mr. Palmer. He introduced me to O. K. Brady and Brady passed me along to a personage he called Kiddo. Kiddo made me known to another, who said he would take me to his brother, and so I reached one point at last. The brother owned a cayuco, but he couldn't paddle, and he passed me along to another man and finally we made arrangements, but my paddlers had to eat breakfast.

I filled in the time wandering around looking in at the open fronts of the houses at the people eating breakfast, watching the meat dealers cutting meat on the top of wooden posts out in the street. As the time approached 7 A. M. a Catholic priest stood on the porch of a house across from a dilapidated church building, a young lad rang three bells, and soon there gathered a small crowd for early worship, all colored, as far as I could distinguish. Suddenly a commotion among the people denoted something unusual. Three men with machettes came down the street, and a crowd of twenty or more people followed. I ascertained that these men had been out road building and had lost their way, making it necessary to stay in the jungle all night, and these simple people were rejoicing at their return.

At 7:15 our craft, containing the two paddlers and three passengers, started on its way to Chagres and Fort Lorenzo. As we drifted past Old Gatun we saw naked children sitting in the shallow water, pouring water over themselves, using a gourd to dip up the water. We passed many cayucos loaded with various products,



**A View of a Cayuco going Down the Chagres.**



**A View of the Bank of the Chagres, showing Tropical trees.**

bananas, sugar-cane, charcoal. We saw the weekly wash of the colored men. They seem first to go in for a good swim and bath, and let their clothes soak; they then stand beside a floating log and beat and scrub their clothes; then spread them out to dry while they swim some more.

We saw yellow tail birds, black birds, cranes and birds whose names we did not know. The river for four miles is jungle on both sides, with clearings for native huts, and the most attractive trails running to the water's edge. We would see in these clear patches cows, goats, horses, pigs and tame ducks. Where the growth of tropical trees and vegetation was thick we would see pale blue, yellow, bright red, pink, white and orange colored flowers, not in thick profusion, but just peeping out here and there. Coconut palms and milk wood trees were numerous, and also wild cane, from which the natives build their houses, was seen in abundance.



**A Street Scene in Arrayan. These are Native Buildings.**



**The Mouth of the Chagres River. We turned into a small Stream here for our Landing Place.**

We were in a winding lane of smooth water, bordered by a many-shaded fringe of green. Now low land with the blue sky near, and again the high hills with the background all green, with here and there in the foreground a patch of water lilies. We saw a tree with what appeared to be bunches of grass hanging from the limbs; these were birds' nests, and we saw yellow tails going into them. In two hours we arrived at Chagres. They were making charcoal where we landed. The Alcalde, the Chief of Police, and the Secretary formed a reception committee to greet us. We signed our names in a book at the City Hall, paid twenty cents silver each as a contribution to the good of something, and then went up the hill to visit the old fort, Fort Lorenzo.



**Our Landing Place at Chagres. Making Charcoal.**



**A View of Main Street of Chagres, taken from our Landing Place.**



**The second one from the left is the Alcalde. The one on the right is the Secretary. In the background is the City Hall of Chagres. We received the most courteous treatment from these men and others whom we met later.**



**Part of Fort Lorenzo. Through the opening in the background we found our way to the interior of the Fort. This apparently was a moat filled with water. Under the shadow of this arch we found a cool and comfortable place to eat our Lunch.**

The Doctor had provided luncheon, and as it was a nuisance to carry, we decided at 10 A. M. to eat. It rained hard for a half hour, but we had plenty of time to see the fort. At 12 noon we took our cayuco for the return journey. We took an additional paddler with us. He wanted to go to Gatun, and was willing to work his way, but he was a bunco steerer. He couldn't paddle very well, but he could talk, but he couldn't do both at the same time, and as talking was easier he did that. The sun shone in our faces, the brightness of the morning was over, and the poetry of the trip was waning. Suddenly a breeze sprung up and I spread my coat for a sail. This put an idea into our pilot's head. He steered for shore, cut three palm branches of the saw-tooth variety. They were ten feet in length. He gave one to each of us passengers. With the sun in front they made a shade for us—with the wind behind us they made a sail, or three sails, and merrily we bowled along. The river turned and the wind blew the wrong way; our sails were no



**The Interior of the Fort Lorenzo. Tropical Vegetation Covers everything. The Man to the Left of the three is a Native Policeman.**

longer available, but fortune was still with us, for up the stream came a gasoline launch owned by Mr. Morden, and he gave us a tow. We also took in tow a boat that had two hunters in it. It was a merry party, and our paddlers had smiles as big as their faces would let them. We left our cayuco at Gatun, and also the hunting party. Mr. Morden invited us then to return to Christobal in his launch down the old French channel, and the day was a success. We broke the rudder on our launch, but Mr. Morden was raised in Michigan and couldn't be beaten. With an oar he steered the craft to a safe harbor.

I mentioned, incidentally, we ate our lunch at 10 A. M. At 7 P. M. we had soup, porterhouse steak, baked beans and four other vegetables, coffee and cocoa, two pieces of pie each, and some cheese (this meal specially prepared). To bed at 9:30.







The Zone Penitentiary at Culebra.

## NOTES ON THE CANAL ZONE



The Zone Police force is made up of a fine body of men, well qualified for the work; the majority of them are ex-soldiers, who have seen service in Cuba or the Philippines. The force consists of, approximately, three hundred, and is divided among eight main stations and twenty-nine outposts, or out stations, in addition to the headquarters of the department.

In the year ending June 30, 1907, the total number of arrests were 6,236, of which 925 were for violation of sanitary regulations, 787 for intoxication and 1,176 disorderly conduct. Of the persons arrested 365 were females and 5,871 males. The total number of convictions resulting from these arrests were 5,193.

On my return from the Canal Zone I heard the police department being criticized as being lazy. Everyone has a right to their opinion, and I give the figures above to let those who have not been on the Zone form their opinion. The men wearing the uniform of the Canal Zone police force appeared to me to be capable, and they were at all times courteous.

The work of policing the Canal Zone is made difficult by the mixed nationalities of the laboring classes and their ignorance of the laws and conventionalities of civilization. The department has forty-one different nationalities on its arrest book. In March, 1908, there were 586 arrests, and in April, 591. There were forty nation-

alities represented in the 591 arrests and fifty-two offenses. There were 146 prisoners in the district jails on April 30, and ninety-five convicts in the Zone penitentiary.

The convicts are employed in road building; the value of their work in April, 1908, was \$1,580.00.



**Crazy Chinaman in his Hut.**

### **Crazy Chinaman**

There is an old shack near Culebra, which is occupied by a crazy Chinaman. The story you are told is that this man had a brother who died on the Canal Zone and, since that time, the brother who was left would not go away from the place, and had lived for many years alone in the ramshackle shelter which he has constructed near the graveyard in which the brother was buried.

### **Native Produce Dealers**

Back in the country one can find small settlements and clearings. Fruit and vegetables are raised by the natives, and brought into market. Frequently one would see horsemen passing along the trail and disappear into what looked to be an impenetrable jungle. These are native produce dealers: baskets and pack saddles are used to carry the produce. At Culebra, near the railway station, is a good market. Two snap shots were taken,—one of a man and woman on the way to market, another of a man on his return after disposing of his produce.



**Coming to Market.**



**Returning Home from Market.**

## **Baseball**

There is a baseball league on the Canal Zone, consisting of seven teams, and good baseball is played, and people get just as excited and interested as we do over baseball in the States. A baseball park is at the rear of the Tivoli Hotel. If you are a guest, and have a room on the third floor, it is easy to obtain a very good view.

The Ancon team was in the lead on April 15th, with an average of 867. You can talk baseball on the Isthmus as well as anywhere, but there are some men who do not talk or think of anything except how much dirt is being moved. A story was told at one of the minstrel shows (all Zone talent), of a woman whose husband talked digging dirt and moving dirt, both when he was awake and asleep. Neighbors were invited to dinner one evening and, no sooner had the meal been served, than the host engaged the other man at the table in an animated discussion of the number of trains of dirt moved that day and the day before. The wife rose up from the table, went into another room, to return with an umbrella, which she raised, then seated herself again at the table. Her astonished husband exclaimed, "Why! What are you doing? What is wrong?" She replied, "Oh, I just want to keep the cinders out of my eyes. So many trains are passing!" The subject changed and baseball was used as a compromise,—ladies can talk baseball on the Canal Zone.



The Band on the Canal Zone.

## Band Music

At nearly every large town one can see the conventional circular band stand. I do not know how many bands there are on the isthmus, but was able to secure a fair picture of the "Isthmusian Canal Commission Band," of which Chas. E. Jennings is musical director. This band gives weekly concerts at different points along the Canal Zone. The lack of entertainment from outside sources has brought out a remarkable lot of talent.



## Disbursing Department

A great sum of money is handled on the Canal Zone and at Empire, in a large building, an efficient force of men receive and disburse all moneys. The system for taking care of this work seems to have many safeguards that increase the detail, yet, strange to say, the paying off of this large force is done in less time than the average railroad in the States can do it. A man known in Evans-ton, Illinois, as "Shorty" Williams, but whose signature reads, "Edward J. Williams," is responsible for the conduct of this office. He says the secret is in having a good system, and having good men to carry it out. Mr. Williams' training has been in railroad work nearly all his life. It seems that railroad training is a good basis for men engaged on the Canal work.

## Electric Fans

I read a statement that all the Commission hotels were equipped with electric fans. As mosquitoes and flies do not like a breeze it seems that the introduction of these fans have a double value.

In one of Col. Gorgas' reports, he cautions people against flies as carriers of typhoid fever germs, so the introduction of any device obnoxious to disease-breeding insects is of value.



## Telephones

On the timetable of the Panama Railroad there are twenty-seven stations, fourteen of which are marked as having telegraph stations. When in Colon I wished to communicate with Culebra, but did not find it was marked as a telegraph station, and when I inquired of one of the P. R. R. employees was told to go to Pier 11 and telephone. I found that all the various headquarters and departments along the line were connected by telephone, and it afterwards proved a great convenience. This telephone system is a part of the P. R. R. equipment and gave good service. It is used extensively by the Canal Commission, and it can be safely stated that the telephone is doing its share in reducing the time for the completion of the Canal. The telephone is an efficient time saver.



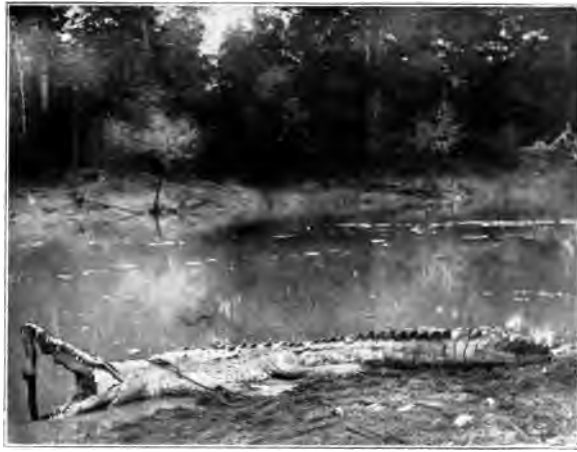
The Alligator killed at La Boca.



**This Alligator measured fourteen feet six inches.**



**This Alligator measured eleven feet. The mouth is propped open and a little Alligator one foot long is suspended from the upper jaw. The Boat in the rear is the one used by the Hunters.**



Just two Alligators.

### Monotony of the Work and Diversions

The continual digging and unchanging character of the work for many of the men would make it impossible to retain efficient help on the Canal Zone were not some variety or outlet offered; baseball, music, minstrel shows, athletic sports all have their function in giving the workers the much-needed diversion of mind and body. Hunting is one of the diversions that appeal to the minds of some of the men, and while deer and other animals abound in numbers, the keenest delight is alligator hunting. It entails much physical endurance, and success depends on the skill of the marksman.

At the harbor of LaBoca a large and fierce specimen made the waters dangerous. A boatload of hunters made the attempt to rid the harbor. Where the fresh water of the Rio Grande empties itself into the bay the monster was found; a bullet fired hit him in the eye. The boat was upset, but, by good fortune and a rope, the monster was landed. He was said to be twenty feet long. The camera gives you a fair idea.

Four men went out into the jungle to hunt alligators. One of the alligators which they killed measured eighteen feet; another one eleven feet, and four smaller ones. Four of the men in the picture are hunters. The others just came in to get their pictures taken.

These same hunters, on another trip, killed an alligator fourteen feet six inches long. My friends were not content with the labor of hunting alligators, but were lively and doing odd things, thoroughly enjoying their holiday.

## Red Bug



There is a pest on the isthmus which is known as the red bug. It is also called a jigger. It resembles what we know in this country as a tick.

The red bug lives in the grass and tropical vegetation that grows underfoot. A person wearing low shoes will find the ankles covered with red spots after taking a walk through the jungle or grass.

The red bug produces a painful irritation. The negroes who go barefoot are frequent sufferers from this pest, even though their skin is tough and callous.

The men whose work takes them in the brush wear leather leggings to protect themselves. Hunters have to be careful to see that the leg from the foot up to the knee is well covered.



**Three Hunters in a Tree. The fourth is Shooting them with the Camera.**



## MAP OF THE CANAL ZONE



On the following map will be found the route of the Canal, the location of the various towns, the outline of the lake which will be formed by the dam at Gatun, and also the lake which was contemplated when it was decided to put the dam on the Pacific side at La Boca.

The dam at La Boca is not to be built and in examining the map you will consider the dam at Miraflores, and the canal a sea level canal from that point.

As an aid to the map and for general information on the location of settlements along the canal, the Panama railroad time table of March 1st, 1908, is reproduced.

A time table of the Panama railroad is liable to alterations from time to time as the new tracks are laid along the relocated right of way. But everything is changing on the Canal Zone; our men on the isthmus are making history every day.

PANAMA RAILROAD COMPANY											
TIME TABLE No. 1											
TAKING EFFECT MARCH 1st, 1908											
SOUTHWARD.			Distance From Colon	MAIN LINE		NORTHWARD					
No. 7 Pass.	No. 5 Pass.	No. 3 Pass.		S. Stop F. Flag Station		No. 2 Pass.	No. 4 Pass.	No. 6 Pass.	No. 8 Pass.		
Daily	Daily	Daily		STATIONS		Daily	Daily	Daily	Daily		
Leave	Leave	Leave		Leave	Arrive	Arrive	Arrive	Arrive	Arrive		
P. M.	A. M.	A. M.	Miles			A. M.	P. M.	P. M.	P. M.		
4:35	10:30	5:30	.00	† COLON .....		9:05	1:00	3:50	8:00		
s 4:37	s 10:33	s 5:32	0.42	† Cristobal .....		s 9:03	s 12:57	s 3:47	s 7:57		
s 4:43	f 10:37	s 5:38	1.90	† Mount Hope .....		s 8:58	12:53	3:42	s 7:52		
f 4:48	10:43	f 5:44	4.52	† Mindi .....		f 8:50	f 12:46	f 3:35	f 7:45		
s 4:55	s 10:50	s 5:50	7.08	† Gatun .....		s 8:43	s 12:40	s 3:30	s 7:40		
f 5:03	f 11:00	5:58	10.68	† Lion Hill .....		8:33	f 12:30	3:19	f 7:29		
f 5:08	f 11:06	6:03	12.75	† Ahorra Lagarto .....		8:27	f 12:24	3:13	f 7:22		
s 5:15	s 11:13	s 6:10	15.52	† Bohio .....		s 8:20	s 12:17	s 3:05	s 7:15		
s 5:23	s 11:22	6:18	18.75	† Frijoles .....		s 8:10	f 12:08	2:58	s 7:06		
							P. M.				
s 5:31	s 11:31	s 6:26	21.62	† Tabernilla .....		s 8:03	s 11:58	s 2:50	s 6:58		
s 5:35	11:35	6:30	22.84	† Barbacoas .....		8:00	11:54	2:47	6:55		
s 5:37	s 11:37	s 6:32	23.56	† San Pablo .....		s 7:58	s 11:52	s 2:46	s 6:53		
f 5:40	f 11:40	6:35	24.57	† Balhamonos .....		7:54	f 11:48	2:43	f 6:50		
s 5:45	c 11:45	s 6:40	26.02	† Mamei .....		s 7:50	s 11:45	2:40	s 6:47		
s 5:53	s 11:53	s 6:49	28.53	† Gorgona .....		s 7:41	s 11:37	s 2:32	s 6:37		
s 5:58	s 11:58	s 6:54	29.90	† Matachin .....		s 7:36	s 11:32	2:27	s 6:32		
	P. M.										
s 6:03	s 12:03	s 6:50	31.26	† Bas Obispo .....		s 7:32	s 11:27	s 2:23	s 6:27		
s 6:09	s 12:09	s 7:05	32.83	† Las Cascadas .....		s 7:26	s 11:20	s 2:17	s 6:21		
s 6:17	s 12:17	s 7:14	35.18	† Empire .....		s 7:17	s 11:13	s 2:10	s 6:14		
							c				
s 6:22	12:22	s 7:19	36.18	† Culebra .....		s 7:10	s 11:08	s 2:00	s 6:10		
6:30	12:30	7:26	39.01	† Cucaracha .....		7:00	10:57	1:51	5:57		
s 6:32	s 12:32	s 7:28	39.78	† Paraiso .....		s 6:58	f 10:56	1:50	f 5:56		
s 6:37	s 12:38	s 7:31	40.72	† Pedro Miguel .....		s 6:54	s 10:52	s 1:48	s 5:52		
s 6:42	s 12:43	s 7:35	42.08	† Miraflores .....		s 6:50	s 10:48	f 1:44	s 5:48		
s 6:50	s 12:50	s 7:40	44.53	† Corozal .....		s 6:43	s 10:40	s 1:38	s 5:40		
6:55	12:55	7:45	46.55	† La Boca Junction .....		6:38	10:34	1:32	5:33		
7:00	1:00	7:50	47.58	† PANAMA .....		6:35	10:30	1:30	5:30		
				Arrive	Leave						
P. M.	A. M.	A. M.		† Telegraph Stations		A. M.	A. M.	P. M.	P. M.		
Arrive	Arrive	Arrive				Leave	Leave	Leave	Leave		

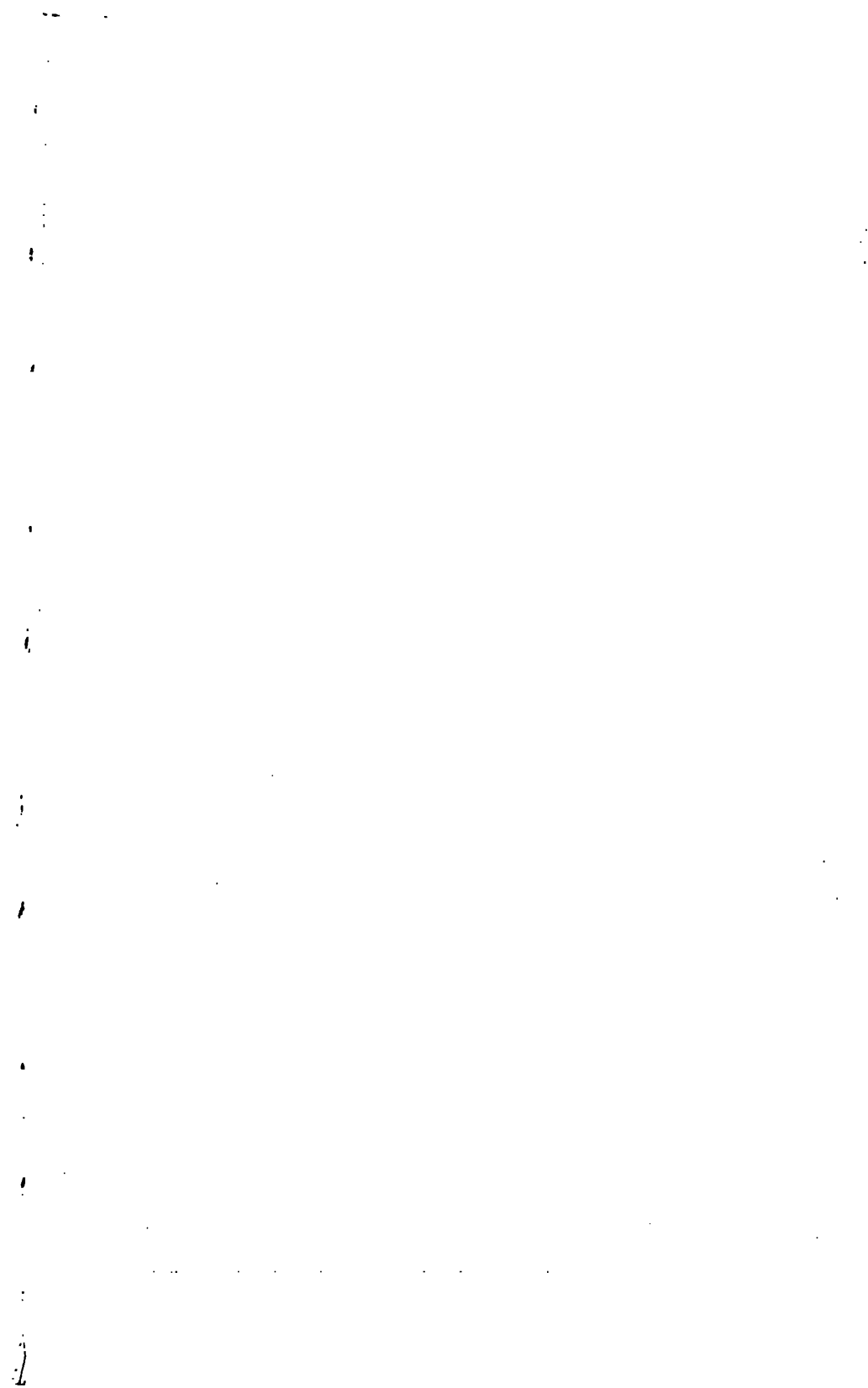


Figure 1. The effect of the concentration of the *Agaricus bisporus* spores on the growth of *Agaricus bisporus* on the substrate. The concentration of the spores was 10<sup>4</sup>, 10<sup>5</sup>, 10<sup>6</sup>, 10<sup>7</sup>, 10<sup>8</sup>, 10<sup>9</sup>, 10<sup>10</sup>, 10<sup>11</sup>, 10<sup>12</sup>, 10<sup>13</sup>, 10<sup>14</sup>, 10<sup>15</sup>, 10<sup>16</sup>, 10<sup>17</sup>, 10<sup>18</sup>, 10<sup>19</sup>, 10<sup>20</sup>, 10<sup>21</sup>, 10<sup>22</sup>, 10<sup>23</sup>, 10<sup>24</sup>, 10<sup>25</sup>, 10<sup>26</sup>, 10<sup>27</sup>, 10<sup>28</sup>, 10<sup>29</sup>, 10<sup>30</sup>, 10<sup>31</sup>, 10<sup>32</sup>, 10<sup>33</sup>, 10<sup>34</sup>, 10<sup>35</sup>, 10<sup>36</sup>, 10<sup>37</sup>, 10<sup>38</sup>, 10<sup>39</sup>, 10<sup>40</sup>, 10<sup>41</sup>, 10<sup>42</sup>, 10<sup>43</sup>, 10<sup>44</sup>, 10<sup>45</sup>, 10<sup>46</sup>, 10<sup>47</sup>, 10<sup>48</sup>, 10<sup>49</sup>, 10<sup>50</sup>, 10<sup>51</sup>, 10<sup>52</sup>, 10<sup>53</sup>, 10<sup>54</sup>, 10<sup>55</sup>, 10<sup>56</sup>, 10<sup>57</sup>, 10<sup>58</sup>, 10<sup>59</sup>, 10<sup>60</sup>, 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